THE XPERIA ZL PUTS FUNCTION OVER FORM

TAKING SHOTS WITH SONY'S SLIM NEX-3N

PLUS: Q&A WITH TIME'S HARRY McCRACKEN

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041913 #87

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PHONE HOME

HTC GOES SUPER SOCIAL WITH FACEBOOK'S NEW PET PROJECT

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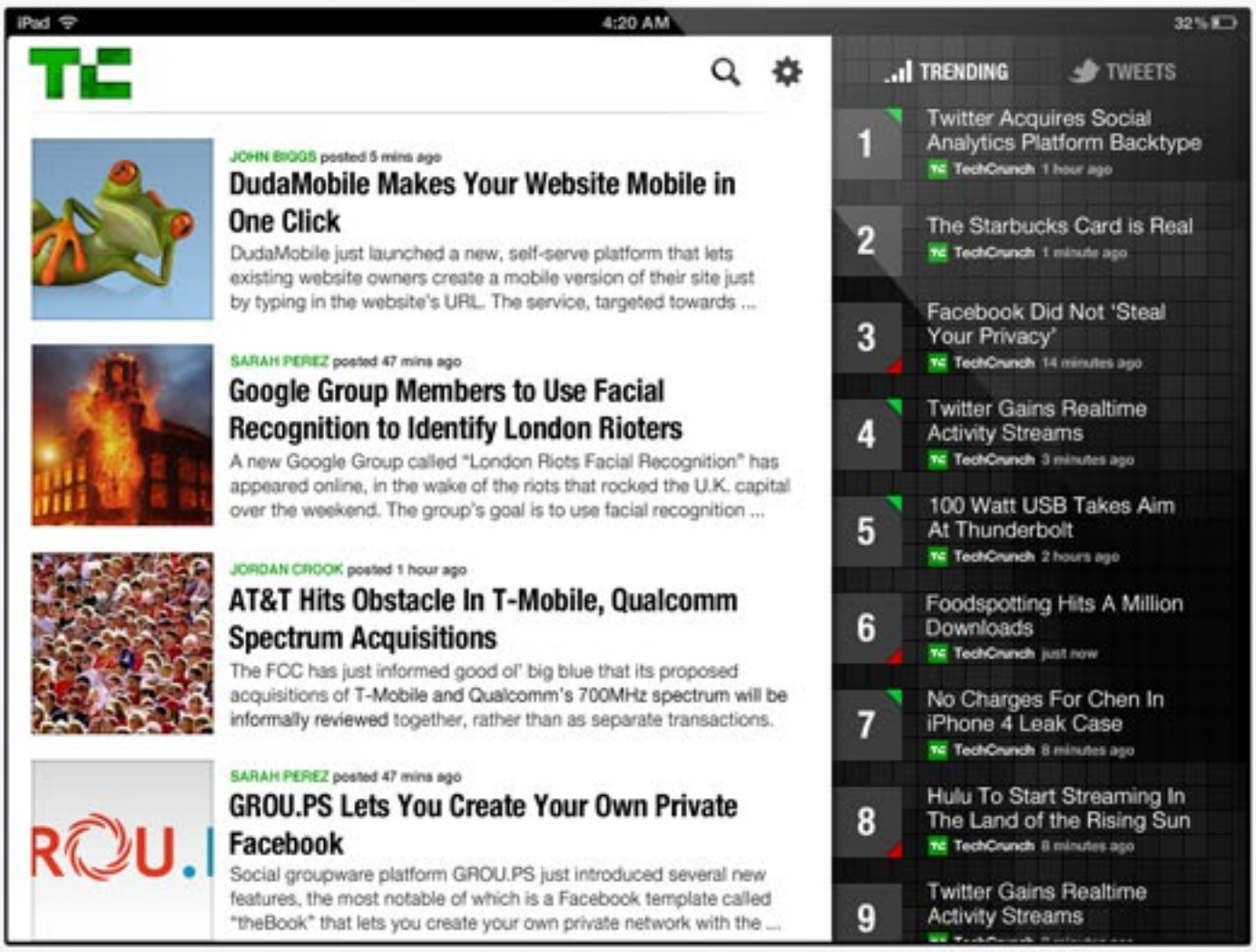

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ISSUE 87

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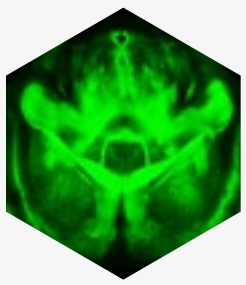

On the Cover:
Photograph by Will Lipman for Distro

GOOGLE GLASS GONE WILD

EDITOR'S LETTER

DISTRO
04.19.13

It seems like ages since Sergey Brin staged one of the most dramatic product launches of all time at last year's Google I/O, guiding a bemused audience through a cavalcade of extreme antics that saw a prototype Google Glass headset delivered to the Moscone Center courtesy of skydivers, BMX riders and mountain climbers. This week, the very first Explorer Editions of Google Glass shipped to lucky recipients through rather more pedestrian means: UPS. Still, those deliveries were received with no less excitement.

These early units are shipping out in waves, with many of the I/O preorderers (including this eager editor) left waiting and watching unboxing videos with envy. The first videos of the early editions in action started hitting YouTube en masse, something we're sure will become increasingly commonplace through the spring. We also finally got the full specs for the thing, including 802.11b/g and Bluetooth connectivity, 16GB of internal storage and a 5-megapixel camera capable of 720p video recording.

Google also unveiled the developer API for the system, enabling eager coders to start crafting their wares, and so too did the MyGlass Android companion app launch in Google Play. Through this, lucky users can customize their new headware to their heart's content before taking to the streets and making the world incredibly jealous — or, at least, curious.

Last week's big news was Google Fiber coming to Austin, Texas, thus doubling the markets in which the company's ultra-fast internet access is available. This week, another market was announced with rather less fanfare. Provo, Utah, is to be lit up next, though nobody's saying exactly when just yet. The deal is still pending some local approvals, but with the mayor enthusiastically on board, it's seemingly secure.

If that has you feeling flush with pride about the state of American internet access, let me take you down a couple of notches with the news that Japanese ISP So-net has announced a fiber-based service called Nuro, supposedly the fastest in the world. How fast? Try 2 Gbps download speeds and 1 Gbps uploads. Humbled? I sure am. Let's move on.

The *Wall Street Journal* reported

EDITOR'S LETTER

> "This week, the very first Explorer Editions of Google Glass shipped to lucky recipients..."

this week that Microsoft is cooking up a smartwatch with a 1.5-inch touchscreen. Little more is known at this point, but one can certainly expect that Redmond's latest wearables will pack a lot more functionality than the SPOT watches that came before and never quite caught on.

Microsoft is also rumored to be taking a bit of a half-step back from some of the more radical UI tweaks made in Windows 8, starting with the return of the dearly departed Start button. Additionally, Windows 8.1 is said to enable the option to boot directly to the desktop, which would save me at least one click every morning.

HP announced that it would start bundling the Leap Motion controller with a select few of its laptops and desktops, ahead of a broader move to start integrating the gesture-detecting hardware right into future devices. This signals a bright future for hand-waving computing, but with Microsoft's Kinect for Windows also having a strong presence on this nascent scene, I can't help but wonder if these competing technologies will slow each other down on the way to mainstream adoption.

Motorola design chief Jim Wicks sat down with *PC Mag* this week to talk about the company's next generation of smartphones, and it might come as little surprise that those devices will be breaking with the company's typical Android customizations in favor of a far more stock experience. Additionally, Moto's tight Verizon relationship seems not long for this world, with plans to get more phones on more carriers. When? Sometime in the latter half of 2013.

In this week's Distro, we have the full review of the HTC First, the appropriately named first device to ship with Facebook Home. We also have reviews of the Sony Xperia ZL, a slightly less-covetable cousin to the Z, and Sony's latest ILC camera, the NEX-3N. Ross Rubin explores HP's gradual shift from webOS to Android in Switched On, Joshua Fruhlinger looks at the increasingly overwhelming world of mobile notifications in Modem World and *Time*'s Editor-at-large Harry McCracken sits down for Q&A. It's all here; it's all for you — and you won't need any special headgear to read it. D

TIM STEVENS
EDITOR-IN-CHIEF,
ENGADGET

FEED AESTHETIC, ELECTRIC CHARISMA AND LOOK TO THE COOKIE

DISTRO
04.19.13

INBOX

Touch article names to read full threads

THE FIBER FIGHT FOR AUSTIN'S FUTURE
ISSUE 86,
APRIL 12TH, 2013

"Samsung needs to think small, not even bigger. There is a real dearth of reasonably sized but high-end Android phones out there. The RAZR M is the only one I can think of. More competition in the super-slim 4- to 4.3-inch category would be great. I don't think these new devices do anything. They already have the Galaxy Note II. They should have a lineup with a high-end Galaxy device at 4", the Samsung GS 4, and then the eventual Galaxy Note III."

— ALEXANDERWOOD

KRYSTALBOARD
ISSUE 86,
APRIL 12TH, 2013

"Come on... This is a step backwards. We have smart boards in every room at our charter school. Who needs this??"

— DREWSCHLÖSSER

HTC FIRST
ISSUE 86,
APRIL 12TH, 2013

"Next up, HTC Uno."

— UOPJ06

"It's only good if your friends' photos are good. I hope you have interesting friends."

— JOOSHPAK

"A dedicated camera button is almost mandatory in a social-centric device like this one."

— VERYTHRAX

WHEN TECH CAN'T SAVE US FROM ROAD RAGE
ISSUE 86,
APRIL 12TH, 2013

"LOL, I just finished my Chinese dinner while reading the comments and opened the fortune cookie. It said, 'Go with the flow will make your transition ever so much easier.'"

— ERICWHTENACK

"I make a three-word argument against the idea that tech can't save us from road rage. 'Self-Driving Car.'

Terrifying experience, glad nothing worse happened."

— FLAGEZOOKE

ROKU 3
ISSUE 86,
APRIL 12TH, 2013

"I must agree that the Roku is hands-down the best little device out there. Between Amazon VOD, Netflix and Plex, who needs cable?"

— ZENMASTER

THE ENGADGET INTERVIEW: ELON MUSK
ISSUE 86,
APRIL 12TH, 2013

"He's the kind of CEO the United States needs these days — people with drive, ambition and not afraid to speak their minds. People that make big things happen. Too many CEOs these days are more concerned with stock prices and PR rather than doing something bold."

— CHARLESP2009

"Well, if Musk's prediction is right, bring on 2016. I'm looking forward to owning an electric car. Been eyeing a Leaf since the price drop, but the price and range are still not quite where I want them to be. The problem is that my current car (and only one I've driven since adulthood) is definitely not going to last three to four more years. Hrm."

— THRACIA

"He has the Steve Jobs vision and the drive and the will to execute it. He has already made it to low-earth orbit before any non-government entity ever [did]. He will change everything."

— ADAM_CHANEY

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04.19.13

EYES-ON

PENTAX WG-3

Tap for detail

CLEAR VIEW

MEASURE UP

ADVENTURE SURVIVAL

EXTREME SNAPSHOTS

Ruggedized cameras are seldom heralded for their looks, but Pentax is on to something with some recent gadgets. The WG-3 not only offers two varieties based on the limits of your trek, but also sports a few different color options alongside frames that are built for durability.

THE DAMAGE: $300 & $350

PHOTOGRAPHS BY WILL LIPMAN

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EYES-ON

PENTAX WG-3

CLEAR VIEW
The 3-inch LCD around back displays those crucial settings and allows for image review with a panel that is plenty bright and sharp for ogling the details.

PHOTOGRAPHS BY WILL LIPMAN

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DISTRO
04.19.13

EYES-ON

PENTAX WG-3

MEASURE UP

The pricier WG-3 option tacks on GPS (for geotagging), Qi wireless charging and a secondary display on the face that shows time, barometric pressure, compass info, altitude and underwater depth.

PHOTOGRAPHS BY WILL LIPMAN

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04.19.13

EYES-ON

PENTAX WG-3

PHOTOGRAPHS BY WILL LIPMAN

ADVENTURE SURVIVAL

In order to pull through those expeditions, the WG-3 is waterproof, shockproof, crushproof and coldproof. The shooter's outer shell completes the protection with a rugged look in multiple hues.

KOBO AURA HD

Less than half a year after its Glo and Mini efforts, Kobo has announced a new reader that once again rethinks the standard 6-inch screen. With the Aura HD, Kobo is going big, extending things to 6.8 inches, putting it closer to tablet size. With that upgrade comes an impressive resolution: 1,440 x 1,080. The Aura HD is a new form factor for Kobo, a large-format reader with a high-res screen, but it's a size the company has no intention of extending beyond the end of the year.

There's certainly something in the pitch to dedicated e-reader fans — the Aura HD has many of the high-end features voracious readers would demand, starting with that big display, which packs in an impressive 265 ppi. The result is clear: text that looks as if it were printed on a real page. You can further adjust that with the help of 10 font styles with 24 sizes, along with a slew of weight and sharpness settings. This thing was also built with black-and-white images in mind. And thanks to the 1GHz Freescale i.MX507 processor inside, things zip along nicely. The display still suffers from the weaknesses of most of its e-ink competition. As ever, you're not going to want to use this device as your primary web driver, in spite of the improved screen and zippier processor.

Predictably, the angular design has helped to make the device a bit chunkier, with the Aura HD measuring 0.46 inch thick. The points on the rear are also a fair deal sharper than the ones you'll find on the Simple Touch — though the device does still feel quite nice. It's heartening to see another company conform a device's form factor to reflect real-world usage. The Aura's got a handy 4GB of storage built in, expandable via an exposed microSD slot — though even without the latter option, that translates to plenty of books.

PRICE: $169

AVAILABILITY: APRIL 25TH

THE BREAKDOWN: KOBO EXTENDS THE READING REAL ESTATE TO A TABLET FORM FACTOR PACKING A 265 PPI DISPLAY.

Click on product names to read full stories

Click on product names to read full stories

KORG VOLCA SERIES

PRICE: $149

AVAILABILITY: JUNE 2013

THE BREAKDOWN: THREE NEW MINI SYNTHS BALANCE RETRO AND MODERN TO HANDLE BASS, BEAT AND KEY DUTIES.

Korg's love of the mini-analog synth clearly remains strong as it's added three more to the fold — the Volca Beat, Volca Bass and Volca Keys (the clue to what they do is in the names). While some firms take a pro product and work down, making cheaper versions, Korg seems to take a different approach. The three mini-synths clearly take inspiration from the Monotribe groovebox that came before them, but are a step up in terms of design. Brushed-metal finishes give them a vintage, almost Stylophone feel. The Volca Bass, in particular, looks almost too much like the legendary Roland TB-303 to be coincidence, and if we didn't know better, we'd say the color scheme of the Beat echoes the TR-808.

First things first, these are unmistakably Korg. The look, the feel, the very idea, is almost becoming a signature of the brand. A good balance between retro authenticity, paired with modern needs makes them a tempting prospect to a wide range of musicians. Sound-wise, it's more of the same. All three devices perform their respective parts well, with that familiar crunchy, lo-fi, yet complex analog-based sound. This time, there's full MIDI support across the board, with each unit sporting a five-pin port up top. That said, they truly work on their own, too, with each one housing an inbuilt loop sequencer for phrase-based performance, and can be synced to one another.

NUMARK MIXTRACK QUAD

Who'd have thunk it? Numark, at a music trade show with another DJ controller for your consideration. This time it has taken its popular Mixtrack console, and doubled down on the number of channels on offer. Between the Mixtrack, the Mixtrack II, the Mixtrack Pro II and this Mixtrack Quad, there's likely a Mixtrack for everyone. As with other members of the Mixtrack family, the layout is fairly traditional, with two platters plus transport controls flanking a central mixer section. Above each platter is a set of eight MPC-style trigger pads and some rotary controls for FX and filters. If the Quad looks like it's got an extra splash of color compared to its siblings, that's because it has. The pads and platters have configurable RGB LEDs, which we first saw in the NS7 II. As before, there's a built-in audio interface, which is pretty much essential for a controller of this level.

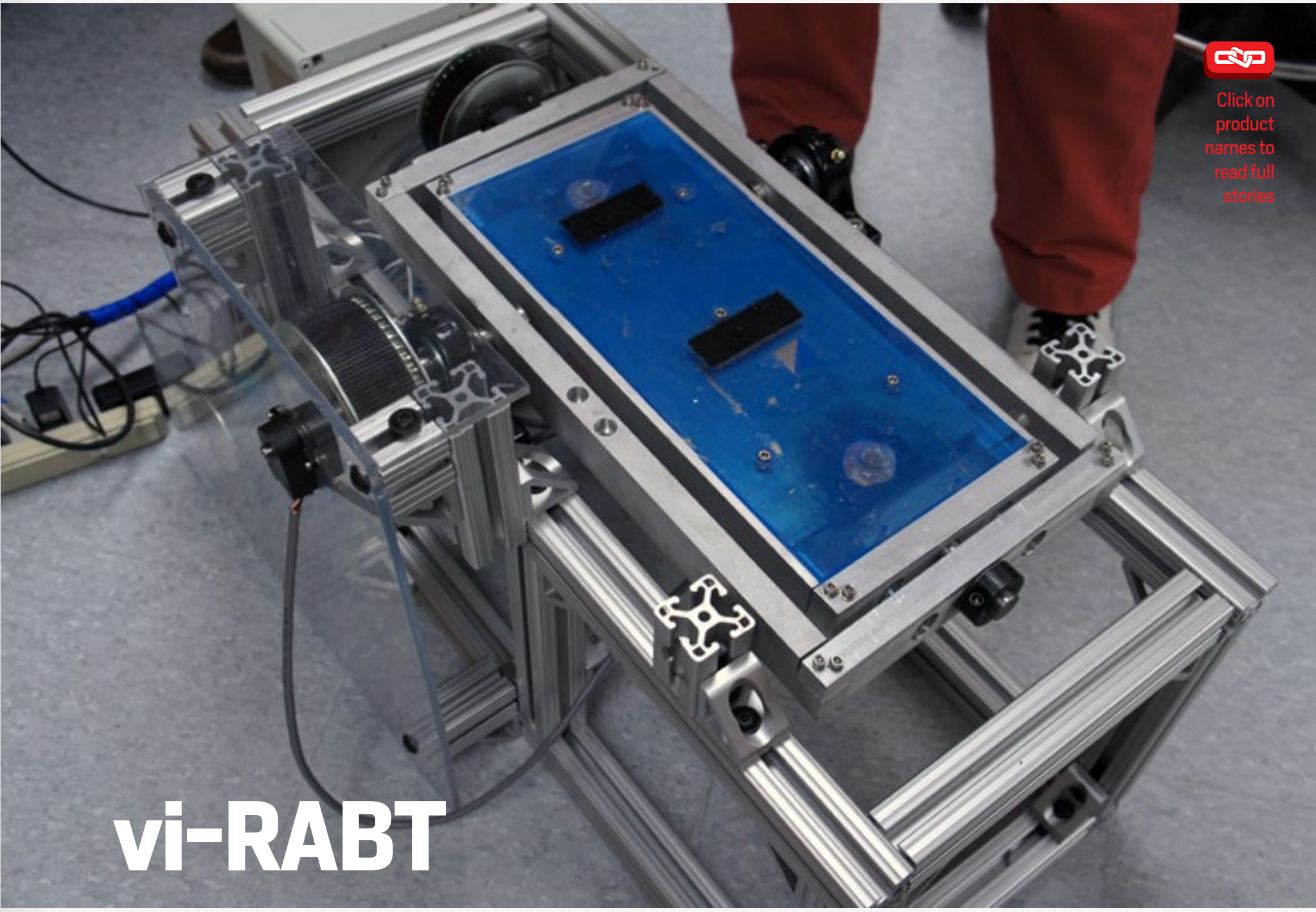
If one firm knows the controller game, it's Numark. Not only does it have an offering at just about every price point, it knows just how to categorize them. Head down to the Mixtrack level, and things start to get more plastic. So, as you can imagine, that's exactly what we have here. Plastic platters, plastic knobs and, you guessed it, plastic buttons. No one said that was a terrible thing though, and anyone who has laid hands on any of the other Mixtrack series will know that they are definitely fit for purpose. That plastic does, however, get broken up when you reach the trigger pads, which are firm and feel perfectly mashable — thanks to plenty of experience making these via sister brand Akai's MPC series. The configurable colors certainly make the device a lot more attractive, and serve a functional purpose too — if you're willing to configure them, that is.

PRICE: $349

AVAILABILITY: TBD

THE BREAKDOWN:
NUMARK PADS ITS MIXTRACK SERIES WITH ADDED CHANNELS AND CONFIGURABLE LEDS.

Click on product names to read full stories



Click on product names to read full stories

vi-RABT

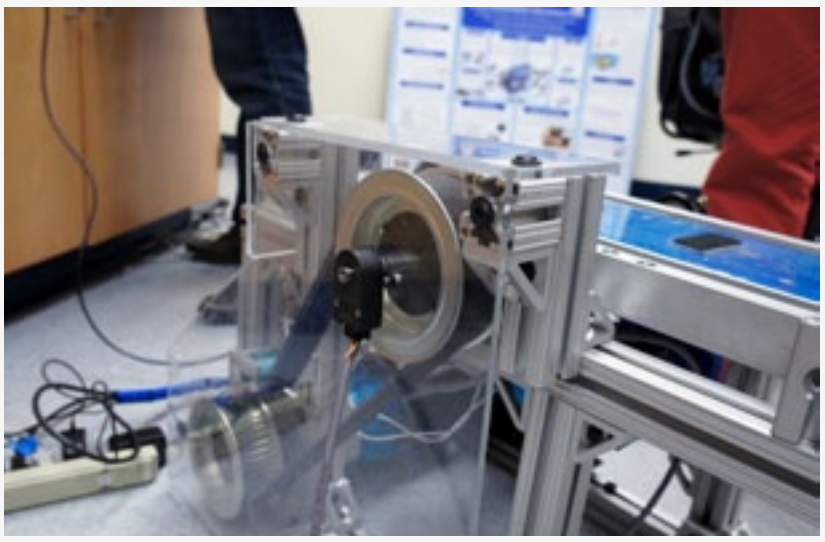
In the basement of the Egan Research Center at Northeastern University, a group of students is toiling away to build a rather unique device called the Virtually Interfaced Robotic Ankle and Balance Trainer — or vi-RABT. Aesthetically, it's little more than a robust steel frame with a few gears and motors hanging off it. On top is a blue platform that appears to be acrylic. That platform is home to four sensors that measure the pressure a foot places on it. These are not only able to determine the strength with which a subject is able to push off, but also can determine their center of gravity and balance.

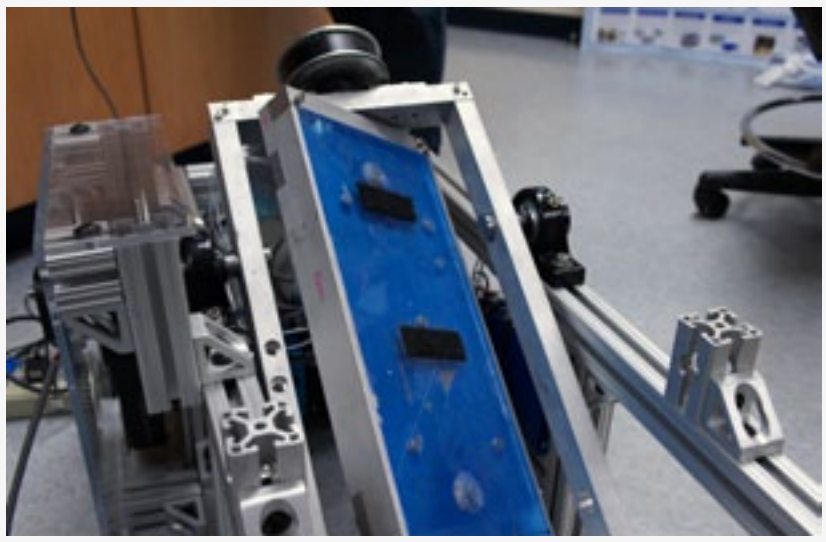
Underneath the Velcro-scarred acrylic are two springs that measure force in the opposite direction. What you see

PRICE: TBD

AVAILABILITY: TBD

THE BREAKDOWN: A ROBOTIC DEVICE LOOKS TO HELP SPEED UP THE RECOVERY PROCESS WITH DATA COLLECTION AND MORE.

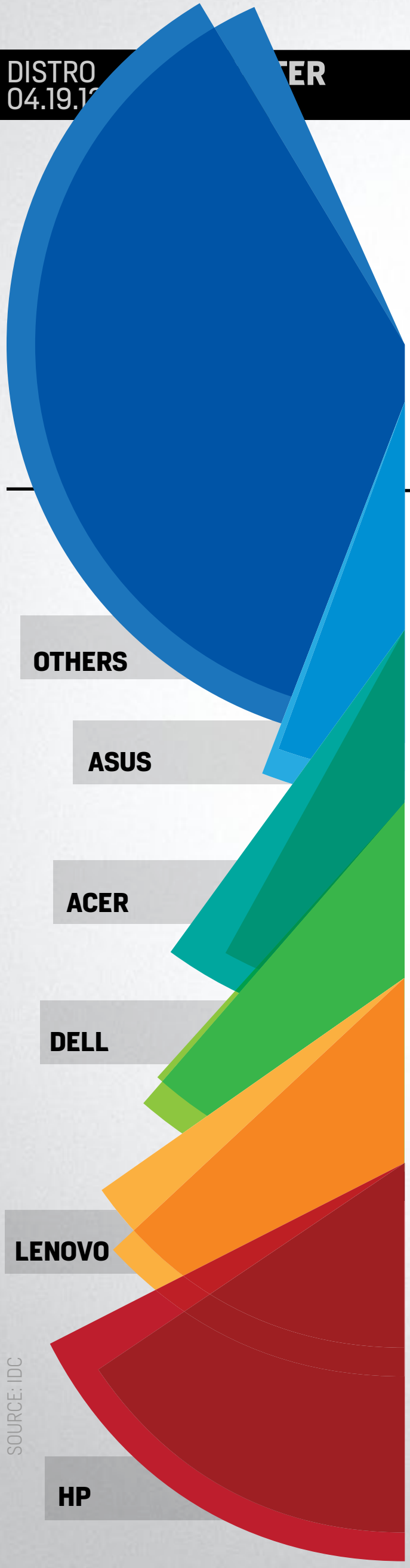




here is just one component of a larger apparatus, and to truly appreciate it, let's put it in context. Two of these devices will eventually be placed side by side inside a larger stationary platform with guardrails around it.

After collecting the data, an exercise regimen would be designed using a piece of companion software. The pair of motors, gearboxes and pulleys would then be used to provide assistance in two degrees of freedom, to help stroke victims slowly build their strength back up. The sensors are capable of collecting real-time data that could then be used to control the motors. Feedback from the forceplate could sense if patients are about to lose their balance and compensate to keep them upright. What the team quickly realized is that the motors on board can not only provide assistance, but also resistance. This opened up the possibility of using the vi-RABT not just with stroke victims, but also with rehabilitating athletes who suffer an ankle injury.

After putting together the first piece in roughly three weeks, the next step is completing the platform and building out the "virtual reality" component of the system. This won't be an Oculus Rift-like headset, though. Instead, it will rely on a large screen to display scenery to simulate walking, running or bike riding. The idea is that the visual cues, combined with the physical ones help stroke patients rebuild nerve connections more quickly through the combination of stimuli. Perhaps the most exciting part, though, is the cost. Similar systems can cost up to $60,000. So far the team has spent just a fraction of that — $6,000. Of course, there is still plenty of work to be done, but a commercial version of the vi-RABT could cost as little as $10,000 and be available in two years. D



GLOBAL PC SHIPMENTS FOR TOP 5 VENDORS

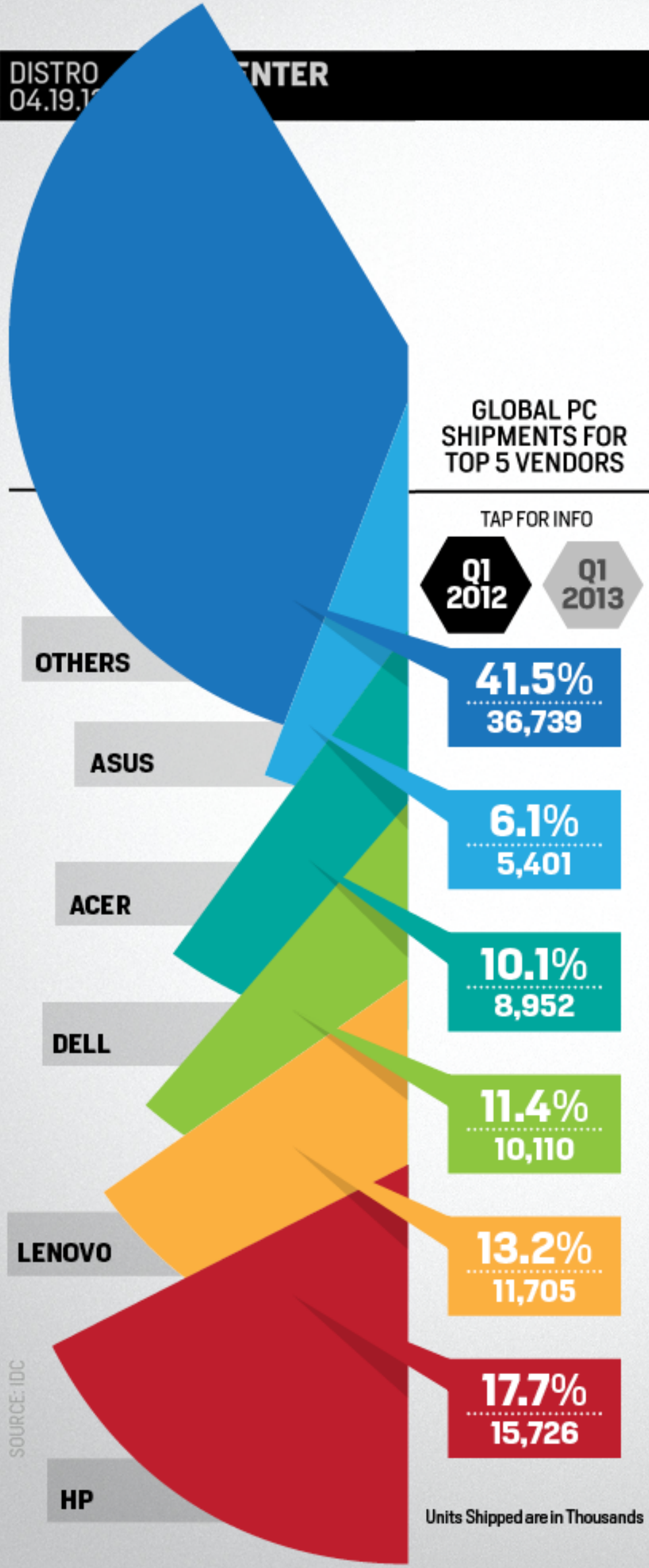
TAP FOR INFO

Q1 2012

Q1 2013

PC Shipments Take a Dive

If Windows 8 is the ticket to a bounce-back in PC sales, it's going to be a long, slow recovery; at least, as long as you ask IDC. It estimates that worldwide computer shipments in the first quarter of 2013 fell 13.9 percent to 76.3 million, which is the steepest quarterly drop the research firm has recorded since it started tracking PCs back in 1994. While the exact factors at work aren't clear, IDC blames it on a mix of customers spooked by Windows 8's unfamiliar interface, the continued rise of mobile devices and the decline of the netbook. So who's reigning in this apparently declining PC empire, then? Worldwide, it's a different picture than it was a few months ago: HP is back on top at 15.7 percent, followed by Lenovo, Dell, Acer and ASUS. With the exception of Lenovo, however, virtually all of the manufacturers involved saw at least some decline in their PC shipments. — *Jon Fingas*



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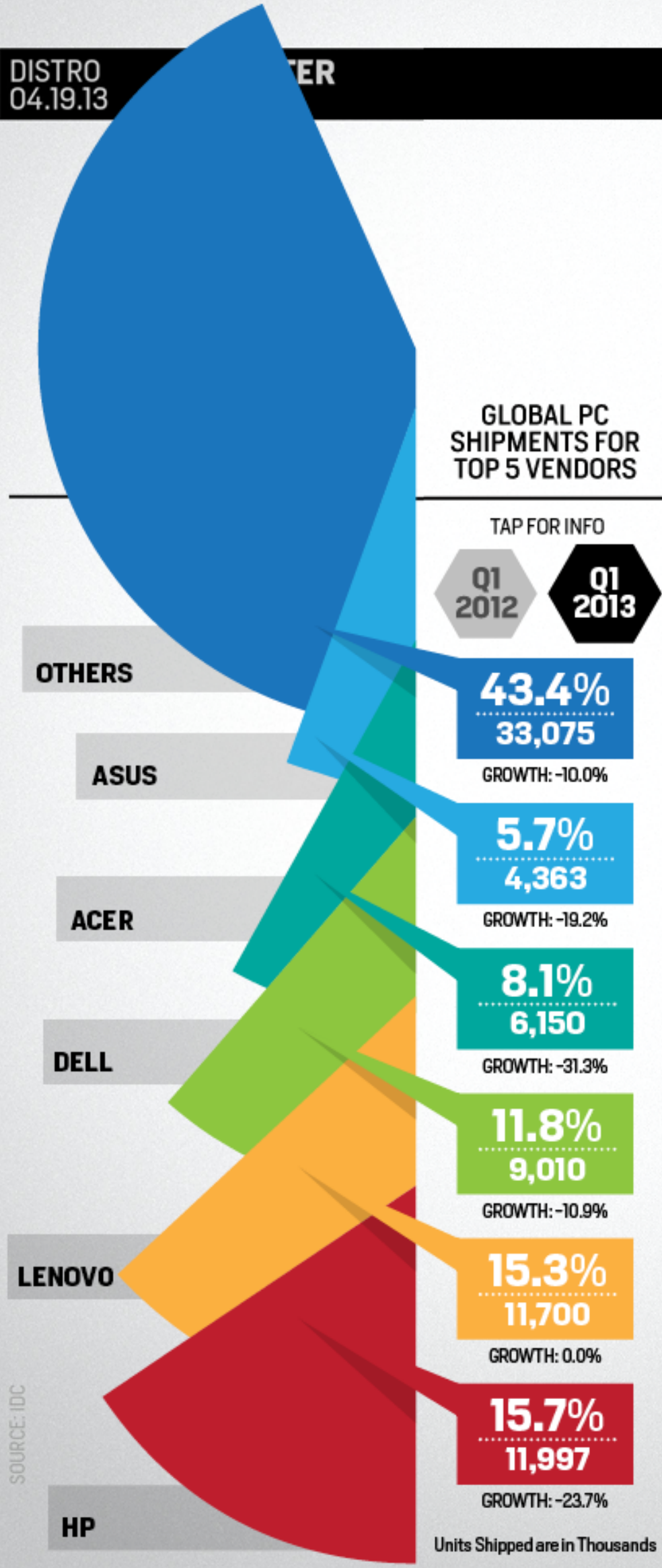

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RECOMMENDED READING

PHOTOGRAPH COURTESY OF GOOGLE

You Lookin' at Me? Reflections on Google Glass

By Jan Chipchase
All Things D

We've already seen some Google Glass news this month with the formation of the Glass Collective, a new investment group backed by some big Silicon Valley names, and next month promises even more out of Google's annual I/O conference. In the lead-up to more widespread availability, Jan Chipchase of Frog, a design and consultancy firm, has written this essay for *All Things D* examining some of the issues bound to arise from a product that's "both on-your-face and in-your-face," as he puts it. That includes what he learned when he was exploring use cases for a similar (though non-functional) wearable device at Nokia a few years back, and what he's learned from years of collecting data about how people use products at Frog.

Click on headlines to read full stories

How NASA Brought the Monstrous F-1 'Moon Rocket' Engine Back to Life
By Lee Hutchinson, *Ars Technica*
There are many instances of new technology being informed by the past, and space exploration is no exception. Here, Lee Hutchinson details one effort from NASA that's resurrected a long-dormant F-1 engine that was once set to bring astronauts to the moon and may one day lead to new engines powering future spacecraft.

The Reading Brain in the Digital Age: The Science of Paper versus Screens
By Ferris Jabr, *Scientific American*
You'll find plenty of firm convictions from fans of both paper and e-books, but what does science have to say about the advantages or disadvantages of each? Ferris Jabr delves into some of the research for *Scientific American*, and finds that paper still has the edge in at least one big area.

OK, Cupid: Giving Your Love Life to Google Glass and the Hive Mind
By Tim Maly, *The Verge*
Another look at some of the possible implications of Google Glass and wearable computing, this one from Tim Maly, who examines artist Lauren McCarthy's experiment with "augmented dating" and the broader effects that an always-on augmentation could have on our lives.

The Antisocial Network
By Paul Krugman
The New York Times
There's been a slow boil of public interest in Bitcoin for the last couple of years, but that overflowed into the mainstream earlier this month when the virtual currency saw what was by far its biggest boom to date. That flurry of activity has prompted Paul Krugman to chime in on the matter again, describing what he says is a fundamental flaw for the currency: it isn't social enough.

HOW HP LEARNED TO STOP WORRYING AND LOVE ANDROID

DISTRO
04.19.13

FORUM

SWITCHED ON

BY ROSS RUBIN

ONLY THOSE WHO were at the highest levels of HP at the time will likely ever know the full story of the spectacularly botched $1.2 billion acquisition of Palm and webOS. In the span of only eight months in 2010, the IT giant's plans for the operating system underwent a titanic turnabout — from a foundation technology that would infiltrate every crevice of its device business to an orphaned open-source project ultimately sold to LG Electronics. Was the shift driven by core business softness that precluded further investment, the personal fiat of a short-tenured CEO or a justifiable reaction to disappointing sales? All three likely played some role.

HP purchased Palm because it was dissatisfied with the options it saw in the mobile operating system landscape. Beyond the deep relationship the company had with Microsoft for PCs, it had dabbled with Windows Mobile on a couple of smartphones such as the HP Glisten that never saw broad distribution. It had also produced an Android device, an obscure netbook called the Compaq AirLife 100 that lacked Android Market and was distributed exclusively via Spanish telecom giant Telefonica.

HP faced the same dilemmas that RIM and Nokia did. Despite exceptional freedom to customize, Android was the path to commoditization that offered the chance to be a small fish in a big pond. Windows Phone, with little freedom to customize in the software layer, was a gamble on a comeback that offered the

> "... It's easier to make a case for Android as a force for commoditization than it was three years ago."

chance to be a big fish in a small pond.

Like other PC manufacturers, HP has used Windows 8 on tablets, notably on its slim, yet highly serviceable enterprise-focused ElitePad 900 that uses a clever system of add-on sleeves that provide new functionality. But when it comes to ARM-based consumer products, it has steered clear of both Windows RT and Windows Phone. Neither has grabbed significant market share from iOS or Android in the tablet or smartphone markets yet.

But now, about three years to the month that HP announced its acquisition of Palm, the company is returning to the consumer tablet market with the Android-based Slate 7. Unlike the TouchPad at its release, it's dirt cheap, coming in at $30 below the Kindle Fire HD or Nexus 7 and just $10 above the second-generation Kindle Fire. However, it provides full access to Google Play in a stainless-steel frame and boasts support for Beats Audio and printing. (The latter is something that HP hopes to extend beyond its own Android devices.) These may not represent the kinds of differentiation HP once aspired to with webOS, but they satisfy more consumer requirements than the TouchPad had a shot at addressing.

If anything, judging by the consolidation of power we've seen in the smartphone market, it is easier to make a case for Android as a force for commoditization than it was three years ago. But Android has improved significantly in that time. It's smoother, more polished and its developer support is stronger than ever as it stands on the verge of a major upgrade that will almost certainly be revealed at Google I/O next month. And HP will be one of the only major companies in the game with a sub-$170 tablet that offers access to the largest library of Android apps.

The Slate 7 may not set the world on fire in a blaze as red as one of its color options. And while HP may be better than Amazon at eking out some margin from low-cost devices, the Slate 7 likely won't contribute much to the bottom line that HP has its eye on in its devices business.

But after seeing TouchPad volumes crawl at the tablet's introduction and fly after it was discontinued in a fire sale, HP's first Android tablet should play well to its strength in the retail channel, particularly at Walmart, and should make for an easy bundle with a PC at back-to-school time. As it starts over in mobile, HP seeks to switch from a strongly differentiated product with marginal sales to a marginally differentiated product with strong sales. For that, there is nothing without volume. D

WHO'S DRIVING THIS THING?

DISTRO
04.19.13

FORUM

THIS IS THE MODEM WORLD

BY JOSHUA FRUHLINGER

I WAS NEVER A FAN of push notifications. The only alerts I wanted to get while my phone was sleeping included calls, texts and super-important reminders. I didn't need to know if someone liked the photo that I shared. I didn't want to be notified if I hadn't played a particular game in a few days. I'd get around to it. I'd find out on my own.

But lately, mobile operating system makers are pushing the push, rallying to turn their home screens into notification centers that cull all your social, entertainment and organizational information to allegedly make our lives easier. And, to be fair, the more information we consume, the more home screens filled with notifications and push messages are beginning to make sense: show me what's up so I don't have to go find it. I get it now.

So in an effort to join the 21st century last week, I said yes to notifications. Yes! Let's turn on MLB.tv score notifications. Yes! Let's install Facebook Messenger. Yes! Let's try Instagram with all its pushiness. Yes! Tell me when people like my pictures. Yes! Give me news headlines, weather, incoming Twitter DMs and email, and remind me of to-do items that are triggered either by time or proximity! I am a consumer! Feed me!

The result is mostly positive: I am forever presented with a buffet of information and now I spend less time looking for it. Things are being done for me now. Information comes to me. I am observing my online life and choosing to what I respond. It's efficient. It's good. I am king of my silly little domain.

But I risk overdoing it. Tribbles are everywhere. I must be careful to not overload the flow so as to obscure important notifications while consuming

“Get just enough information pushed to you to turn your smartphone into an information appliance without rendering it a spammy floodbot of detritus.”

enough to keep me efficiently connected and in the know. And that’s the trick, isn’t it? Get just enough information pushed to you to turn your smartphone into an information appliance without rendering it a spammy floodbot of detritus. What if I miss mom’s birthday because of that interesting thread on Reddit about butts?

Device manufacturers are all too aware of this as they scramble to create watches, eyeglasses and other second, third and fourth screens on which we’ll watch all this push information flow by when we don’t have our smartphones handy. We’re setting ourselves up to walk around with our own personal server-client ecosystems — our smartphone as a receiver and server, parsing out information to various wearable devices. Maybe a watch to see sports scores and incoming messages. Maybe a wearable device like Glass that will give us some heads-up information as we’re running around. What else can we strap to ourselves to receive info?

But once we’ve soaked in all of this data, set up our own personal servers and dialed it back to the point that we’re getting what we need, are we even driving our devices anymore? We’re quickly reaching the point where the “input” in the input / output relationship of our devices is becoming one-sided on the side of the machines.

Would any of us be surprised to see the keyboard become an option in the future when buying a PC, meant only for writers and those who really need them, much like the graphics tablet has become the domain of designers and architects? Even the venerable mouse has seen better days, with most of us using touchscreens and trackpads, not bothering to use a traditional mouse at all. Maybe input devices will improve. Maybe voice recognition is on its way. But maybe...

Futurists once predicted self-driving cars without steering wheels. Our electronic steering wheels are rapidly being outmoded, stripped away in lieu of more output. Perhaps we’re arriving at better input methods via voice and biofeedback. But perhaps, sooner than we think, we may find ourselves hard-pressed to even get a word in when it comes to the devices we buy.

And then we’re just watching TV all over again. D

REVIEW

DISTRO
04.19.13

CONTENTS

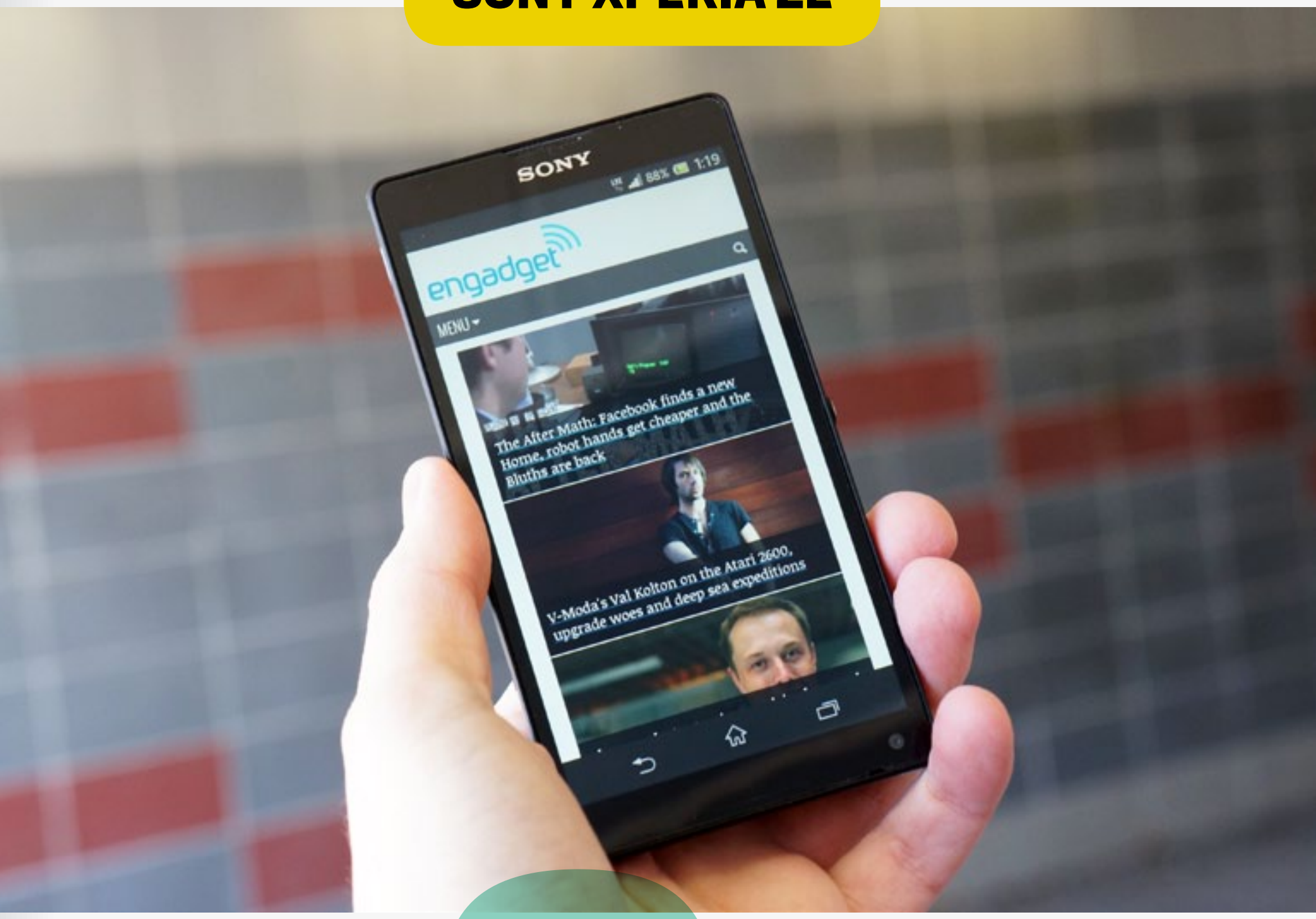
Sony
Xperia ZL

Sony
NEX-3N

HTC
First with
Facebook
Home

REVIEW

SONY XPERIA ZL



Can the Xperia ZL distinguish itself from the competition as well as its similar sibling, the Xperia Z?

By Jon Fingas

Sony took a rather unusual path with its flagship smartphone for 2013: it designed the hardware twice. The Xperia Z is ostensibly the star of the show with its glass body and water-proofing, but it's launching alongside the Xperia ZL, an equally brawny, yet plainer sibling. On a spec sheet, there's no apparent reason for the ZL to exist when its features almost perfectly match those of the slimmer and more stylish Z.

Still, it's precisely that emphasis on function over form that might just win the day. Sony bills the ZL as the most compact 5-inch smartphone

on the market, which could win over folks who see large-screened phones as unwieldy. But is it enough to challenge conventional thinking on big phones, especially in light of fiercer competition? And is there anything special lurking underneath the ZL's reworked hood? Read on and we'll let you know whether the second device in Sony's dual-phone strategy is strong enough to outshine the Z — and, more importantly, its rivals.

HARDWARE

If the Xperia Z is the epitome of Sony's OmniBalance design, emphasizing flat surfaces and right angles across the board, the Xperia ZL fudges the rules a bit. While a cursory look at the front suggests nothing out of order, a quick flip to the back shows a few radical departures — namely, shallow angles and curves. They're nowhere near as pronounced as on Nokia's Lumia 920, but they still lead to a considerably more comfortable grip. We also appreciate the switch to a soft-touch, textured-plastic back. Although the material has less of a premium feel than the glass on the Z, it generally serves as more of buffer against fingerprints and drops.

The ZL's real ace in the hole: you can use it one-handed, at least more easily than the Z.

And there's the ZL's real ace in the hole: you can use it one-handed, at least more easily than the Z. Those curves thicken the phone from the Z's 7.9mm (0.31 inch) to 9.8mm (0.39 inch), but they're more comfortable while helping Sony lop off a substantial 7.3mm (0.29 inch) from the height, mostly in the chin. The net effect is a 5-inch phone that doesn't feel at all as big as your eyes tell you it should. You can reach most parts of the screen without straining your thumb, even as two-handed typing remains very easy with the on-screen keyboard.

Sony's trick design is enough to give the impression that other phone makers have their priorities backwards in valuing thinness over ergonomics. While we generally like skinny devices, we can't really disagree with Sony after comparing this to some of its competitors. The 5-inch ZL is shorter and easier to wield than both the 4.8-inch Galaxy S III and a 4.65-inch Galaxy Nexus, let alone more directly comparable 5-inchers like HTC's Droid DNA / Butterfly. It's not as though those other devices aren't usable with one hand in some situations — it's just that the Xperia ZL is more often a better fit.

Sadly, there are some trade-offs beyond just the more conspicuous pocket bulge. The ZL sheds waterproofing, for example. While that does provide flap-free ports, it also means having to shelter the phone in the rain. More-

SPECIFICATIONS	SONY XPERIA ZL
DIMENSIONS	131.7 X 69.8 X 9.8MM (5.18 X 2.75 X 0.39 INCHES)
WEIGHT	5.33 OZ. (151G)
SCREEN SIZE	5.0 INCHES
SCREEN RESOLUTION	1,920 X 1,080 (443 PPI)
SCREEN TYPE	OPTICONTRAST LCD
BATTERY	2,370MAH LI-POLYMER (NON-REMOVABLE)
INTERNAL STORAGE	16GB
EXTERNAL STORAGE	MICROSDHC
REAR CAMERA	13MP, BSI, F/2.4, 1/3'' SENSOR SIZE, 1.12 M PIXEL SIZE
FRONT-FACING CAM	2.0MP
VIDEO CAPTURE	1080P, 30 FPS (FRONT AND BACK)
NFC	YES
RADIOS	GSM / GPRS / EDGE (850 / 900 / 1,800 / 1,900), WCDMA (850 / 900 / 1,700 / 1,900 / 2,100), LTE (700 / 850 / 1,700 / 1,900 / 2,100)
BLUETOOTH	V4.0
SOC	QUALCOMM SNAPDRAGON S4 PRO (APQ8064)
CPU	1.5GHZ QUAD-CORE
GPU	ADRENO 320
RAM	2GB
ENTERTAINMENT	MHL, DLNA
WIFI	DUAL-BAND, 802.11A/B/G/N, WIFI DIRECT
WIRELESS CHARGING	NO
OPERATING SYSTEM	ANDROID 4.1.2, SONY UI

over, the added bulk doesn't translate to any of the advantages that usually come with more space. The battery has an ever-so-slightly higher 2,370mAh capacity, but it's still non-removable. Sony also doesn't supply more than 16GB of internal storage. Odds are that at least a few owners will be reaching for the microSDHC slot, which has moved underneath a door that hides the micro-SIM as well.

Spin the phone around and you'll find some other elements in familiar and usually easy-to-reach places, including the volume rocker in the top right, the machined-aluminum power button at center right and the headphone jack at top. Unfortunately, this also means that the micro-USB socket is at the top-left corner, rather than the bottom. That

may be partly forgiven since there's a two-stage camera button at the bottom right, something we'd sorely missed on the Xperia Z. The 13-megapixel camera on the back (with LED flash) also appears more safely recessed this time, and Sony still manages to stuff in that uniquely bottom-mounted, front-facing, 2-megapixel camera despite the narrower chin.

Not surprisingly, a few weeks' interval between the Z and ZL launches didn't leave Sony any room to upgrade the processor. It wasn't hurting that badly, mind you. The 1.5GHz quad-core Snapdragon S4 Pro and 2GB of RAM still yield strong performance, as you'll see later on. In fact, most of our concerns center on how the Xperia ZL fares against the competition. It's arriving just as a round of nimbler, Snapdragon 600-based challengers are hitting the scene — devices like the HTC One and certain Galaxy S 4 variants. Not everyone cares for speed battles, but those who do may not give Sony much more than a cursory glance.

DISPLAY

The real, you-can-buy-it-now market for 5-inch, 1080p smartphones is still small: Sony is the only company we know of that's shipping such a display on a truly global scale until the Galaxy S 4 ships. Parallels like HTC's Butterfly, the Oppo Find 5 and NTT DoCoMo's edition of the LG Optimus G Pro are largely region-specific devices. As such, the OptiContrast

You just can't ignore a screen density of 443 pixels per inch — it's a treat when websites look like printed pages.

LCD shared between both the Xperia Z and ZL still has the capacity to impress, especially in countries where either one of those devices is currently the only 1080p phone on offer (including Canada, as of this writing).

The Xperia ZL has a gorgeous 1080p, 443-ppi display.

And it does, in some ways. You just can't ignore a screen density of 443 pixels per inch — it's a treat when websites look like printed pages, or when HD movies show all their detail. Likewise, you'll see rich colors when viewing things head-on. Sony's Mobile Bravia Engine 2 delivers an additional boost in the gallery, movie and YouTube apps, punching up the saturation, sharpening images and improving contrast. It does occasionally go overboard, however. Tangelo fruit that was already a vivid orange in real life suddenly went neon when Sony's software got ahold of it. There's clearly still some room left for refinement.

We'd also remind you that the operative term here is "head-on." As with the Xperia Z, the ideal viewing angles on the ZL are considerably narrower than on the Droid DNA and most other devices this size. Look askew at the LCD to any significant degree and colors will quickly wash out, invert or otherwise deviate from their intended hues. We continue to wonder how a company known for pushing the limits of TVs can't crack the mystery of wide viewing angles in mobile when considerably smaller rivals like HTC or ZTE have fared better with screens they frequently outsource to part suppliers.

The picture is at least bright — sometimes too bright, as blacks can become dark grays. The LCD does struggle in bright sunlight outdoors, although the readability is still leagues better than on phones with recent-generation AMOLED panels, like the Galaxy S III.

CAMERA

As with the LCD, you'll largely know what you're getting with the 13-megapixel, Exmor RS-based rear camera of the Xperia ZL, since we saw the exact same unit on the Z in February. For the most part, that's a good thing. Shots aren't as sharp as we'd like when viewed at a 100 percent crop, and there tends to be an unnecessarily high level of noise in well-lit scenes, but the camera produces mostly accurate colors and focuses quickly on the right subject. To get the full resolution, you'll have to shoot at a more traditional 4:3 ratio. Matching the ZL's native display ratio requires dropping to a 9-megapixel image.

Most owners, we suspect, will simply like the lack of work involved in getting a good shot. Superior Auto mode (also known as auto i+) typically picks an appropriate scene mode for the condition, whether there's a strong backlight or no real lighting at all. You can force HDR to stay on by toggling it from the Normal mode — we found that unusually handy for cleaning up noise in a few night scenes — but it's not often needed. An LED flash will cover those extreme situations where you're indoors with little light on a nearby subject, although the sensor's backside illumination is good enough that it's usually better to just leave the flash off if there's more to work with than pitch-

black darkness.

There's no shortage of finer controls for those who refuse fully automatic modes, including 10 frames-per-second burst shooting, a smorgasbord of effects filters and fundamentals like ISO or white balance. The overall interface bears a welcome resemblance to what's on newer Cyber-shot cameras, although the speed hasn't improved since we tested the Xperia Z. While there wasn't excessive shot-to-shot lag, the app could take a few seconds just to start up, wasting enough time to miss a golden moment. At least there are HTC-style buttons in the camera app to immediately start either photo or video recording, with the option to shoot lower-resolution photos in mid-video.

The rear camera's party trick is its HDR video mode. It does what it says on the tin — the setting captures video with fewer instances of blown-out highlights or underexposed shadows, leading to a more pleasingly balanced image. It's a mild correction, but noticeable. Sony's software can also capture lower-resolution images in mid-video, like many recent smartphones. Make HDR movies and you can only shoot 1-megapixel stills in mid-session.

As for the front, 2-megapixel camera? Well... it's there. The output is good enough for a cropped Instagram selfie or a Skype video call, but not much more. Sony mostly has an edge in positioning the camera at the bottom, rather than the top, reducing the chances that we'll only photograph our foreheads.

SOFTWARE

We weren't anticipating Android 4.2 when the Xperia ZL was bound to come so soon after the Z, and Sony isn't bucking those expectations by shipping the ZL with Android 4.1.2 Jelly Bean. Unless you're craving lock screen widgets, there's not much to miss. With that said, Sony has historically been slow with software upgrades, and we wouldn't count on a speedy or sustained update strategy.

We're mostly dealing with a rehash of the Xperia Z's software load as a result, and that carries its share of blessings and

Socialife can easily be overwhelmed by a busy data stream.

Large swaths of the company's software handiwork are meant to be practical, rather than just an escape from stock Android.

curses. Sony merges Jelly Bean well with its own code, offering quick access to Google Now and rich notifications. Thankfully, large swaths of the company's software handiwork are meant to be practical, rather than just an escape from stock Android: we prefer the multitasking view, which offers a well-laid-out glance at recent apps as well as a tray of mini apps that can run on top of whatever you're doing, such as calculators, sticky notes or timers. While those applets aren't as ambitious as the multi-app juggling from LG or Samsung, they're good enough to handle some quick math or to remind you when a meal is ready.

A key addition for 2013 is Stamina mode, which extends battery life by preventing apps from quietly sipping data while the phone's screen is asleep. You can make exceptions for applications that truly demand real-time updates, whether it's email or a favorite social network, and anything in mid-progress will run until it's finished. Sony's power-management section provides an estimate of just how long you'll last on standby in whichever setting you use, although it's wildly optimistic about the Stamina mode's impact: an estimate of one day and three hours in regular use suddenly jumped to four days and 19 hours the moment Stamina kicked in. Suffice to say that most owners, let alone gadget reviewers, usually won't leave their phones idle for long enough to test those claims.

As with the Xperia Z, though, the home screens on out-of-the-box Xperia ZLs mostly serve as delivery vehicles for Sony services. There are prominent apps and web links for Music Unlimited subscription streaming and the Video Unlimited storefront; the Movies and Walkman (read: music) apps nudge you towards those same services. Sony can't even resist getting in front of the app store experience, putting a Sony Select portal on the phone that offers mostly familiar, Google Play-based app recommendations for newcomers. Although we appreciate well-integrated platforms as much as anyone else, the pre-loaded services on the Xperia ZL are mostly trying to supersede what Google or major third parties are already doing — and often without clear price or feature advantages. There are only so many of us who need synchronicity between a phone and a PlayStation Vita.

We swung through both of the Unlimited services briefly to check their current states on this side of the Atlantic. Music Unlimited at $10 Canadian (also $10 US) per month is competitive with

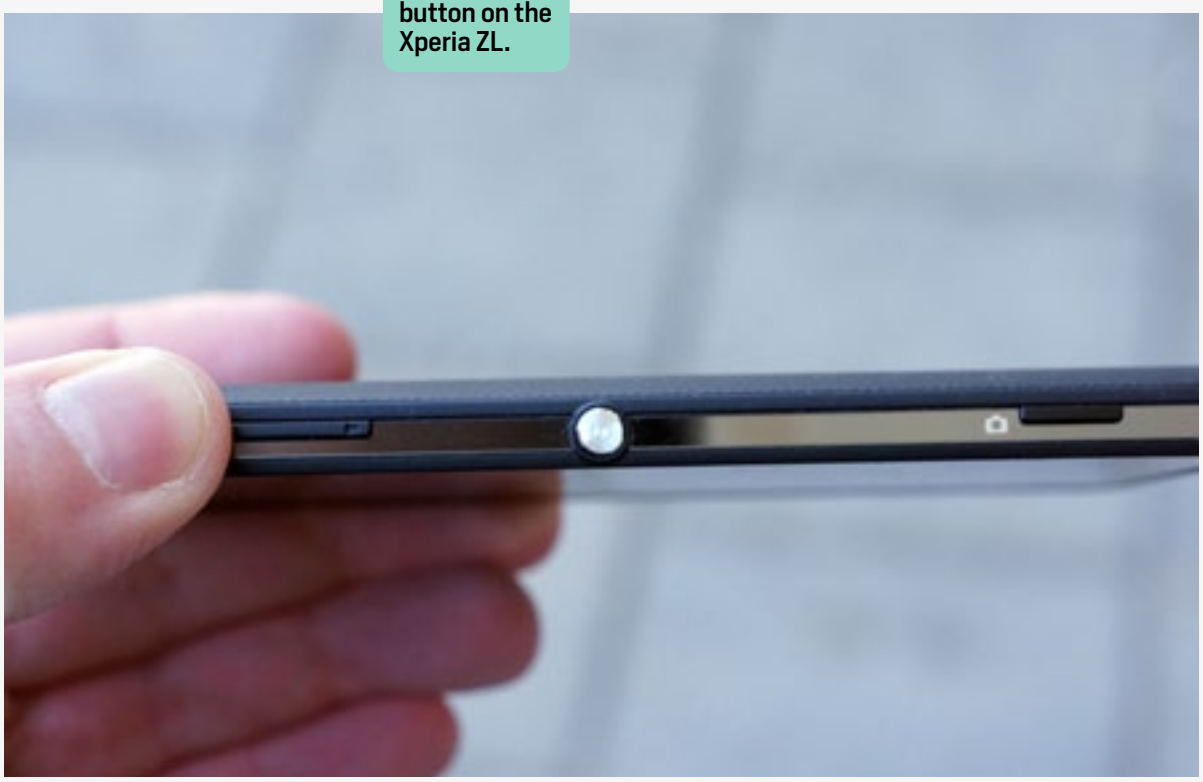
services like Rdio or Slacker, although that begs the question: unless you have many Sony devices, why not just use Rdio or Slacker? Video Unlimited is also slightly disappointing, as we struggled to find movies or TV shows to buy or rent in HD when they're available that way elsewhere. Even a headlining movie like *Django Unchained* is stuck in standard definition. How are we supposed to flex the muscle of that 1080p screen without full-resolution content?

Other Sony-supplied pre-loaded apps are more practical. We saw a similar loadout as on the Z, including Dropbox, a File Commander tool, a Media Remote control for certain TVs, OfficeSuite, a Sony Car driving mode and Xperia Link for hotspots. Socialife, however, we can do without. In theory, it merges the feeds from Facebook, Twitter, YouTube and a soon-to-end Google Reader so that they're all in one convenient place. Apart from not playing to the strengths of the individual services, though, Socialife suffers the same flaw that HTC's Friend Stream and most other social unifiers have faced in the past: it's overwhelmed the moment you're following more than a handful of people or news feeds. We can see there being some utility for owners with a casual interest in more than one service, but we'd point serious socialites toward dedicated apps.

Be prepared for some unwanted carrier fluff, at least if you've got the Rogers edition of the Xperia ZL. We counted 10 Rogers-related apps on the phone, none of which can be uninstalled or disabled — and three of them had (thankfully removable) shortcuts on the home screen. We also couldn't scrap Gameloft software like *Shark Dash*, either. The titles don't consume gobs of storage space, but they chew up resources and screen real estate that could be put to better use.

PERFORMANCE AND BATTERY LIFE

You'd think that having the same Snapdragon S4 Pro, 2GB of RAM and software as the Z would lead to near-identical benchmark results. Right? Yes and no.



We're happy to see a two-stage camera button on the Xperia ZL.

Most of our scores were consistent with what we saw earlier, but our ZL tester rendered web pages much faster in SunSpider, at last delivering speed consistent with other S4 Pro devices, and mustered a significantly higher CF-Bench score. We're inclined to chalk up the advantage to differences between individual units, rather than any kind of extensive optimization.

From a practical standpoint, there's little difference in overall speed. Both phones run smoothly across most of the Android interface, as well as inside of apps. We didn't encounter the stuttering in the multitasking view from before, although we very occasionally noticed a hitch during transitions. What little frustration remains centers around that oddly long camera startup time and also a risk of obsolescence. One look at the HTC One's scores and you'll wish Sony had held out for a Snapdragon 600 to give the Xperia line some added longevity, even if the on-the-ground performance is just fine.

It's clear there are power efficiency problems with the screen, Sony's software or some combination thereof.

We're more concerned about the battery life. Our current battery test, which loops HD video on with 50 percent screen brightness and WiFi on (but not connected), generated a meager five hours and 15 minutes of runtime before the phone shut off. That's not completely out of line, given what the Xperia Z managed, but it's hardly the best showing we've seen. The One for AT&T lasted for two hours longer under that kind of strain with a similar

BENCHMARK	SONY XPERIA ZL	SONY XPERIA Z	HTC ONE
QUADRANT (V2)	8,175	8,019	**12,495**
VELLAMO (V2.0 HTML5)	2,214	2,198	**2,429**
ANTUTU	19,078	19,876	**25,140**
SUNSPIDER 0.9.1 (MS)	1,154	1,900	**991**
GLBENCHMARK 2.5 EGYPT 1080P OFFSCREEN (FPS)	32	29	**34**
CF-BENCH	18,053	16,079	**25,267**

SUNSPIDER: LOWER SCORES ARE BETTER

battery capacity. When other S4 Pro-touting phones like the LG Optimus G can last for eight-plus hours on a test that's only slightly gentler, it's clear there are power efficiency problems with the screen, Sony's software or some combination thereof.

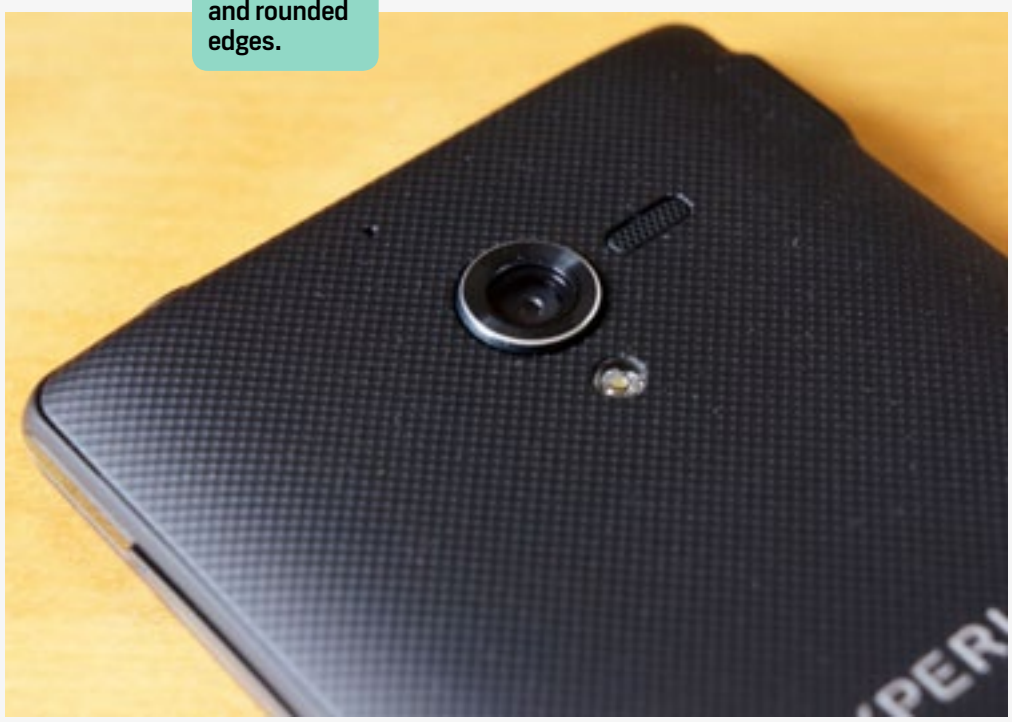
That said, we got a slightly more reasonable seven hours from a taxing real-world excursion that involved 120 photos, four HDR videos, a pair of phone calls and ample amounts of social networking. Odds are that you'll fare better in normal use, and we had no problems lasting through more than a full day of testing Stamina mode with Gmail allowed and a more tempered mix of social networking, light browsing and a couple of photos and phone calls. We just wish we didn't have to treat the Stamina feature as more of a necessity than a bonus.

There's no shortage of cellular connections on the Xperia ZL we tried, which should have the same underlying hardware across North America. It offers penta-band, 42 Mbps HSPA+ 3G with support for AWS-based carriers like T-Mobile USA and smaller Canadian networks. Better yet, the LTE is both equally AWS-aware and penta-band, handling big Canadian carriers, AT&T, T-Mobile USA and a handful of carriers around the world, such as LG U+ in South Korea and SoftBank in Japan. You won't be roaming on LTE in regions like Europe, but you will have plenty of places where data flows freely.

Network performance on Rogers is healthy, though rarely spectacular. Our tests around Ottawa delivered an average of 12.9 Mbps downloads and 8.6 Mbps uploads while on LTE, with a deliberate drop to HSPA+ netting us 6.1 Mbps down and 1.3 Mbps up. Phone call quality on 3G was good for a recipient on a landline, although it sounded a bit muffled coming in through the earpiece. Don't expect an improvement in switching the call to the built-in speaker on the back, either — it's reasonably loud, but sounds very tinny.

WRAP-UP

To answer the most obvious question: if a mysterious benefactor showed us both the Xperia Z and ZL while letting us keep only one, we'd choose the ZL. The smarter ergonomics are just too valuable to ignore, as they produce a 5-inch phone without the



The ZL touts a textured-plastic back and rounded edges.

penalties in size or comfort that sometimes come with supersize dimensions. Waterproofing isn't all that vital, either. While the Z would be our choice if we regularly lounged by the pool, we have a hunch that the plastic-backed ZL is more likely to stay good-looking throughout its lifetime. Glass isn't very stylish when it's shattered, after all.

The ZL is intriguing for other reasons as well. If you've ever wished that huge screens and one-handed use weren't so frequently seen as mutually exclusive concepts, Sony has your back. The 13-megapixel camera is a solid performer, and the processor is still quick on its feet. Sony's UI represents one of the more considered Android implementations we've seen, provided you're willing to forgive the hard sell on its ecosystem.

Still, it's hard to dispute that the smartphone landscape has changed in the weeks since we reviewed the Z — and not in the ZL's favor. The HTC One and Samsung Galaxy S 4 are here or coming soon, and both promise higher-quality 1080p screens as well as nimbler performance. The One, at least, offers longer battery life under heavy use. Neither the One nor the GS 4 will necessarily cost much more, for that matter. Bell and Rogers are selling the Xperia ZL for a respective $100 and $125 on contract, while the One will sell for $150 on Rogers. Why not spend a tad extra for mostly improved technology, especially when you'd have to buy a microSD card to take the ZL beyond 16GB of storage? The only US carrier deal for the ZL so far involves Cincinnati Bell, and its post-rebate $250 price likely won't lure many into switching networks all by itself. We'd gladly spring for Sony's second flagship if the price were right, but that price hasn't arrived just yet. D

Jon is an Associate Editor, serial phone upgrader, photography junkie and unrepentantly Canadian.

BOTTOMLINE

SONY XPERIA ZL

$100+

PROS

- Compact for a 5-inch handset
- Capable camera with HDR video
- Mostly helpful Sony UI

CONS

- Short battery life
- Performance trails rivals
- Narrow viewing angles

BOTTOMLINE

The Xperia ZL is an improvement over the Z, but doesn't shine as brightly next to many of its contemporaries.

REVIEW

SONY NEX-3N

Sony offers respectable specs to entry-level customers with the NEX-3N, its newest compact ILC shooter

By Zach Honig

Last year, Sony's peculiar move to beef up its entry-level NEX left us puzzled, and generally unimpressed. The NEX-F3 was a fine mirrorless camera by most accounts, but its larger footprint left us hoping for a next-gen offering more in line with its predecessor, the NEX-C3 — a tried-and-true shooter that many Engadget staffers still turn to for review photos and trade shows, thanks to its consistent performance and light weight. We were quite relieved, then, to see that this year's device represented a return to the 2011 design, with a few very compelling addi-

The NEX-3N's most celebrated asset is its size — sans lens, it's barely thicker than a deck of cards.

tions, to boot.

Like last year's model and even the C3, the Sony NEX-3N packs a 16.1-megapixel APS-C CMOS sensor. The chip is physically larger than what you'll find in a Micro Four Thirds camera, and it's comparable in size to the sensors that ship in many full-size DSLRs. That imager is the key to the 3N's success — it enables the camera to offer DSLR-like performance in a body that's much smaller, and even less expensive. Speaking of which, the 3N kit carries an MSRP of $500, though you may be able to find it for a bit less, including the 16-50mm retractable zoom lens.

HARDWARE

The NEX-3N's most celebrated asset is its size — sans lens, it's barely thicker than a deck of cards, with a body that measures roughly 4.3 inches in width, 2.4 inches in height and 1.4 inches in depth. It's also fairly light, at 7.4 ounces (body only), yet it still feels substantial, and very well made. Adding the 16-50mm (35mm-equivalent 24-75mm) f/3.5-5.6 lens serves to boost the camera's weight and depth, as you might expect, though the protrusion is far less significant than what we once saw with Sony's previous inclusion, which lacked the retractable-zoom design of this generally superior optic. The detachable lens ships in the box, which makes this $500 3N kit quite a bargain, especially considering the zoom's standalone price of $350.

Another welcome feature is the built-in, pop-up flash. Of course, housing a strobe in such a thin body doesn't come without compromise — there's no proprietary mount up top, which means an external mic is out of the question. This may be slightly disconcerting to video shooters, especially considering that the camera's stereo microphones are mounted on the top of the camera rather than on the

The 3-inch LCD can flip a full 180 degrees for selfie access.

Removable storage is now easily accessed on the side.

front, flanking the lens. That configuration makes the 3N a fine fit for narration but a less-than-stellar option for conducting interviews in noisy environments. We would be willing to look past this oversight had Sony included a microphone input, but alas, there's no such port present.

Sony opted to shift port positioning a bit this year. The only I/O options can be accessed by lifting a door on the left side of the camera, behind which you'll find micro-HDMI and micro-USB connectors, along with an SD card slot. Previously, the removable storage could only be accessed from the bottom of the camera, which often meant unscrewing a tripod mount before popping in a new card, so this left-hand slot is much appreciated. The battery door remains on the bottom of the camera, but the 3N can be charged using a USB adapter, so unless you want to swap cells for a long shoot, your power pack can stay in place.

Otherwise, the layout remains virtually unchanged. Power, a shutter release and playback button are all located on the top of the camera, with a new zoom toggle positioned around the shutter control. You can zoom using this new control or with the one mounted on the lens itself, though we found the on-camera option to offer smoother zooming during video capture, albeit with limited variable speeds. If you're shooting stills, however, the lens-mounted toggle is likely to be the better pick, due to its ability to zoom in completely with a single flick.

On the camera's backside, there's a 461k-dot, 3-inch LCD that can flip 180 degrees to face forward for self-portraits, just like on the F3 — the C3, on the other hand, offered more flexibility when it came to downward tilt, which came in handy when framing overhead shots. The display itself is sufficiently sharp and reasonably bright — a boosted Sunny Weather mode works well outdoors, but with this enabled, the on-screen picture is more saturated with higher contrast than what you'll actually capture. Naturally for a camera in this price

range, there's no EVF, so all of your shots will be composed using the LCD.

To the right of the panel, you'll find two variable controls that enable different adjustments depending on the mode, along with the same four-position wheel with center selector that we've seen on every NEX model, with dedicated buttons for display settings, shutter mode, exposure compensation and ISO. There's also a video capture button towards the top of the camera, just above the thumb grip.

USER INTERFACE

For better or worse, nothing's changed on the UI front. In fact, we wouldn't be surprised to hear that Sony fired its entire user interface team following the very first NEX release, considering that software tweaks have been minimal at best. This is generally good news for current NEX owners — everything is exactly where you'd expect it to be, making a jump from a different model uneventful. The two additions we saw on the NEX-5R, WiFi and a touchscreen, are both absent here, though we don't miss that first feature.

When reviewing the 5R, we had quite a bit of difficulty taking advantage of the camera's built-in WiFi, which theoretically enabled wireless sharing and a small handful of "apps." Once we did get the companion smartphone app to recognize the camera, things moved at an uncomfortably sluggish pace, meaning long waits for file transfers. Sending images directly from the camera to sharing sites, while possible, also meant frustration — typing in usernames and WiFi passwords using the tiny camera display was a tremendous hassle. As for the in-cam PlayMemories Camera Apps, we didn't really find anything useful there, and while Sony has promised to add in new features with a-la-carte pricing, the store won't be open to third-party de-

For better or worse, nothing's changed on the UI front.

The NEX UI remains virtually unchanged from before.

velopers, and applications are currently limited to rather weak image effects.

The touchscreen, on the other hand, did prove useful for focus tracking while recording video. It also came in handy when navigating menus and adjusting settings on the fly. The touch interface never got in the way, and with hardware controls available, its use was always optional. While the touch-enabled display did take a bit of time to grow on us, its absence here was one of the first things we noticed, so if touch is important to you, you'll want to check out the NEX-5R, instead.

Another feature we've grown to love on the NEX line is the dedicated mode dial, which is also missing here — if you want one atop your camera, take a look at the $900 NEX-6. You do still have that functionality with the 3N, though jumping from mode to mode will require a trip to the camera's interface, adding a bit of complexity to the mix. Still, you have your pick of Intelligent Auto, Superior Auto, Program, Aperture Priority, Shutter Priority, Manual, Sweep Panorama and Scene Selection modes, all selectable using the camera's rear wheel.

We generally don't pay much attention to scene modes, but Sony's got some good ones, including Hand-held Twilight, which captures multiple sequential images of dark scenes with each shutter press, merging the frames together for a seamless, steady night shot. It's not something you could manage to pull off in manual mode, and it's quite intuitive in practice. There are also some pretty nifty Picture Effects, such as Toy Camera, Pop Color and Partial Color options that maintain your selected color (red, green, blue or yellow) while making the rest of the frame grayscale.

For folks that are new to the NEX ecosystem, we'll touch on the basic menu structure quickly. Many key settings, such as shutter mode and ISO, can be tweaked using dedicated controls, as we outlined above. More granular adjustments require a trip through the menu system, however, such as selecting the image size, video capture file type, turn-

The NEX-3N comes with a 16-50mm, f/3.5-5.6 lens.

ing off the camera beep, formatting the SD card and so on. The interface isn't tremendously cumbersome, but it's not the most intuitive we've seen.

PERFORMANCE AND BATTERY LIFE

One major fault of the NEX-F3 (and models that came before it) was very sluggish focus speed, and a bit more focus hunting than we like to see. Fortunately, most of the issues were resolved with the 5R, and now the improvements have trickled down to the entry-level model, too. Performance is by no means comparable to what you'll get with most DSLRs or even Micro Four Thirds cameras from Olympus, but it's far better than what we used to see with Sony, and even what you'd get today with cameras like the Canon EOS-M.

During our test, the camera powered on and fired its first shot in two seconds. There was a 0.2-second shutter delay between when the release was pressed and when the 3N captured an image. As for high-speed continuous shooting, you have two options to choose from, including a Speed Priority mode, which nets four frames-per-second, and a regular mode than can snap 2.5 fps. Sony's NEX-6, on the other hand, can snap at up to 10 frames-per-second, so if speed is a priority, the 3N isn't necessarily the best pick for you.

Battery life is also quite impressive for a camera of this size. Sony opted to keep the NP-FW50 1,080mAh battery pack, which is great news for previous NEX owners who might have a spare or two sitting around. With a full charge, we were able to snag more than 1,400 stills and 90 minutes of video, despite several minutes of menu digging and image review. You should expect the 3N to make it through a full day of touring, for example, but you might want to bring a spare battery along on extended outings, just in case. Fortunately, the camera charges using any USB power source, so you can very easily juice it up on the go.

Battery life is great, and you can also charge over a USB cable.

IMAGE QUALITY

Judging image quality is no easy task. Many of the APS-C cameras we've seen recently can handle just about any scene quite well, but kit lenses seem to be a bit more hit or miss. As you've probably figured, a $500 mirrorless camera kit isn't going to ship with the most capable lens, and distortion and sharpness can be apparent here. Looking past those issues, though, the 3N performed quite well.

Colors were vibrant and accurate at all sensitivity settings, and details were quite sharp as well. The NEX-3N offers a sensitivity range of ISO 200 through 16,000, allowing for quite a bit of flexibility. If you're capturing images for the web, you'll be perfectly happy when shooting through ISO 6400 — at ISO 12,800, noise becomes visible in dark areas of the frame even when viewing images at about 12 percent of their full size. And at 16,000, you can see noise in dark areas at an 8 percent view. Noise is barely visible at ISO 3200 and below, however, so even if you're printing your images, you should be able to bump sensitivity up quite a bit.

On the video front, the 3N can shoot at 1080/24p or 60i in AVCHD mode, or 1,440 x 1,080 and VGA in MP4 mode. We

Sony NEX-3N sample photo gallery — swipe to view.

opted to shoot most clips with MP4 output, and video looked smooth and sharp, with accurate exposure and color balance. Sensitivity obviously comes into play here as well, and we managed to capture video with very little noise even indoors. The camera includes optical image stabilization, which came in handy for video clips, but movement was still noticeable in handheld shots. The bundled power zoom lens can be used while recording — the mic didn't pick up any zoom or focusing noise, but zooming wasn't as smooth as we'd like to see.

THE COMPETITION

Sony has done an excellent job of pricing its NEX-3N. With a $500 MSRP including the new 16-50mm retractable power zoom lens, this camera is an absolute bargain. It's a very capable device that even professional photographers wouldn't mind having around, though it won't replace the pricier models for advanced shoots. The most substantial competition comes from Sony as well, believe it or not — the NEX-5R is a phenomenal camera that adds a secondary control wheel, WiFi, a touch-enabled LCD and faster performance for about $650 with the older 18-55mm zoom lens. The NEX-6 adds an OLED EVF and dedicated mode dial on top of that, and ships with the new 16-50mm lens for $900. The very impressive RX100 point-and-shoot is

A secondary control wheel isn't included at this entry-level price.

not to be overlooked as well, at $650.

There are a few other major players in the mirrorless camera space, with compelling models from Olympus, Panasonic and Samsung, and to a lesser extent, Canon, Nikon and Pentax. The Olympus E-PL5 is a solid buy at $550 with a 14-42mm lens, with multi-axis image stabilization and a touchscreen. From Panasonic, you might consider the Lumix GX1, which retails for $450 with a 14-42mm kit lens. Samsung, for its part, has the NX1100, which retails for $600 with a 20-50mm lens and a free copy of Adobe Lightroom. Canon fans with a lot of patience might look at the EOS M — a surprisingly mediocre model that ships for $570 with an 18-55mm lens — while Nikon shooters could consider the J3, which is available for about $550 with a 10-30mm optic.

WRAP-UP

Is this Sony's strongest NEX to date? No, it's not. But it's by far the most impressive entry-level Sony ILC we've seen, and one of the very best options for less than 600 bucks. Excellent image quality, a solid (but compact) build and Sony's new 16-50mm retractable zoom lens make the NEX-3N an excellent fit for interchangeable-lens hopefuls making the jump from a compact point-and-shoot, or even current NEX-3/C3/F3 owners ready for something a bit more fresh. It's a fantastically capable camera, and it looks great, too. We wouldn't hesitate to pick one up. D

Zach is a Senior Associate Editor and heads up Engadget's features content. He's also a lifetime lover of everything aviation and photography.

BOTTOMLINE

SONY NEX-3N

$500

PROS

- Excellent performance and image quality
- Solid build and design
- Very affordable for a mirrorless kit
- 16-50mm power zoom lens in the box

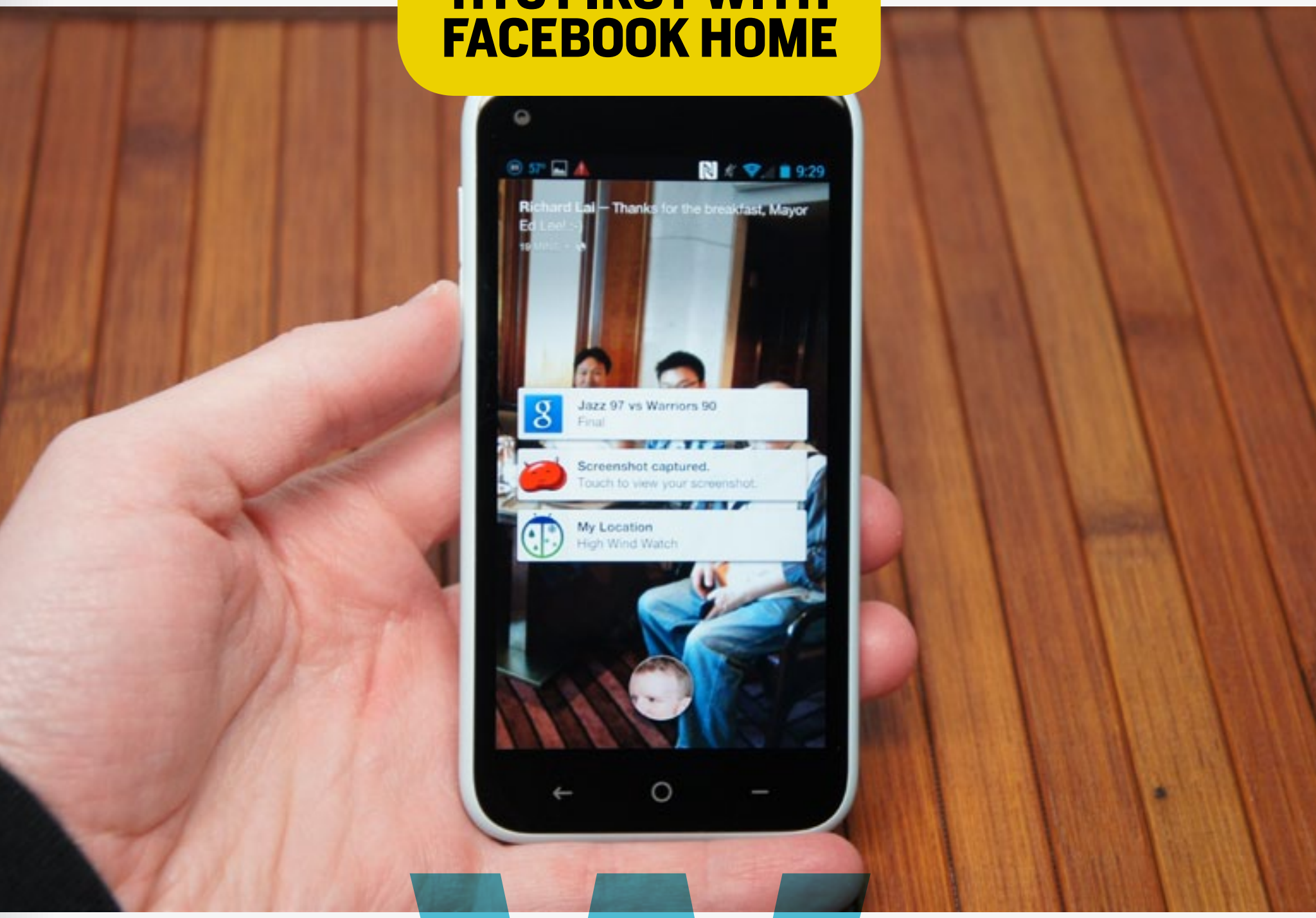
CONS

- No accessory port or mic input
- Power zoom is too choppy for video

BOTTOMLINE

Sony's latest entry-level mirrorless camera is hard to beat.

HTC FIRST WITH FACEBOOK HOME



Will the Facebook-integrated HTC First persuade customers into finding a Home to call their own?

By Brad Molen

With a billion users, it'd be an understatement to say Facebook has done a good job conquering the desktop world. Mobile, however, is the social network's next frontier: although it has a significant presence on every major smartphone and tablet platform, the company has a reputation for bringing its key features to the PC environment long before they arrive on mobile — if at all.

But the April 4th reveal of Facebook Home, a solidly built Android launcher, reflects a change in attitude for Mark Zuckerberg and Co. Instead of simply maintaining a smartphone presence,

HTC FIRST WITH FACEBOOK HOME

Facebook is ready to go to battle and is putting mobile on the top of its list of priorities. It's even adding a proper piece of hardware to its arsenal in the form of the HTC First, a 4.3-inch device on AT&T with LTE, reasonable mid-range specs and a gorgeous display. Is it worth $99 with a two-year commitment to purchase a handset dedicated to the social cause? Should you just get Home as a free download from the Google Play Store when it's available for your device? Or is it best to ignore it altogether?

HARDWARE

It would be an understatement to say the HTC First took a backseat to Facebook Home at the company's recent press conference; it was locked in the trunk and wasn't let out until a few hours after Zuckerberg and a series of HTC / AT&T execs said their piece. That doesn't mean the First's hardware is chopped liver, but even so, the omission of specs is rarely a good sign. Aside from a nod to the LTE radio and a few pictures detailing the four available colors — black, white, pale blue and red, if you're curious — Facebook almost seemed to forget that new hardware was being introduced.

Now that we've had a chance to actually use the First for a few days, we can happily put an end to any confusion about the hardware. In today's market, an Android handset with a 4.3-inch display is considered petite, and the First definitely feels that way: at 125.99 x 65.04 x 8.89mm (4.96 x 2.56 x 0.35 inches), it nearly gets swallowed up in the hand, especially compared to all the 5-plus-inch devices we've been testing recently. It's also incredibly lightweight, barely registering on the scale at 4.37 ounces (124g).

Since the First was built to impress the Facebook-savvy, we shouldn't be surprised that this is one of the most playful-looking handsets HTC has ever made. It's not that there's anything extreme about the design; there's just something about the soft curves, multiple hues and soft-touch plastic shell that wraps around the entire device,

The First comes in pale blue and a variety of other flavors.

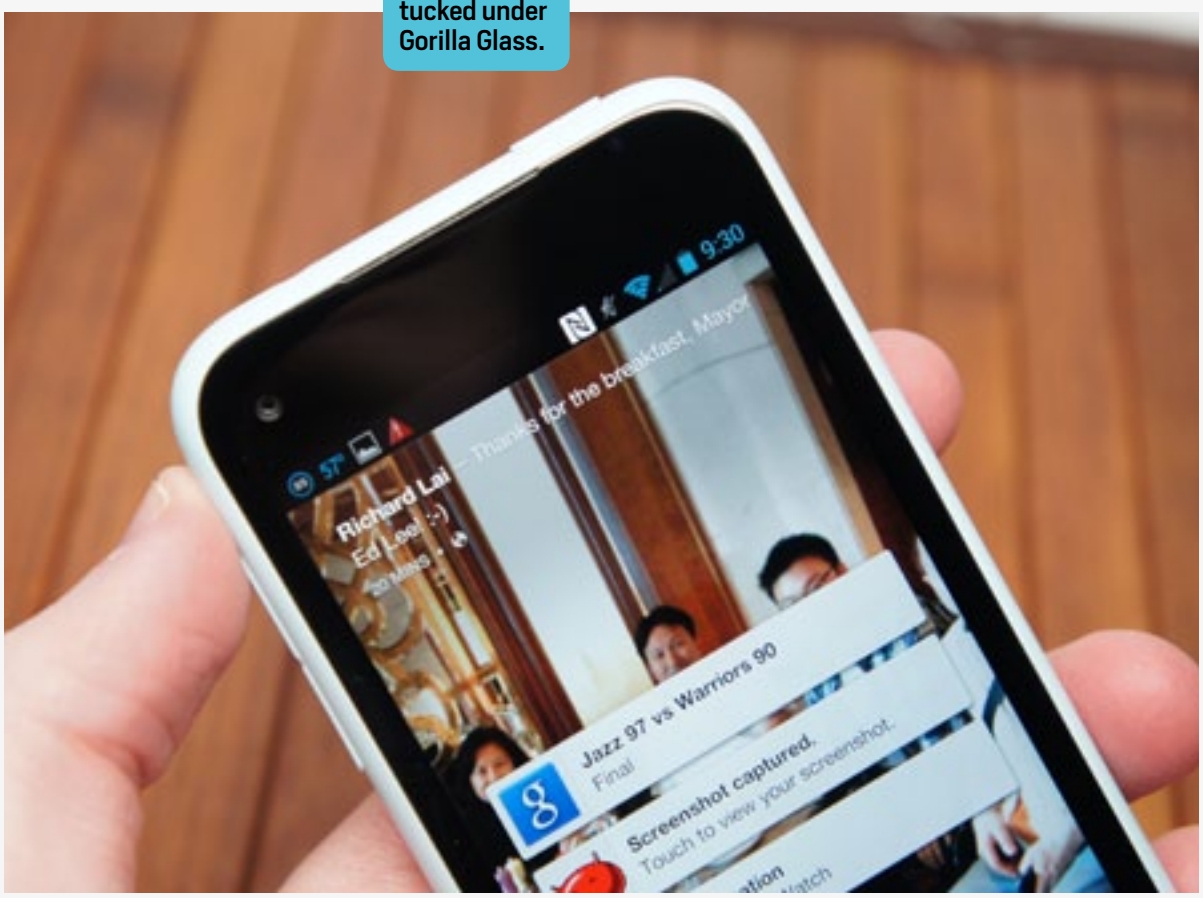
similar to the Lumia 620. (Don't take that comparison too far, though — the shell here isn't user-removable.) All told, it doesn't take itself too seriously; it's a phone that's focused on Facebook, and indeed, it looks the part.

In fact, one of the biggest surprises is that the First's design doesn't really scream HTC — it's almost as if the company is going back to its ODM roots, creating whatever handset other businesses (Facebook, in this case) demand. Whether or not this is the beginning of a new strategy for the Taiwanese manufacturer remains to be seen, but we can't help but wonder if "First" connotes more than just the inaugural Facebook Home device.

On the front of the First, you'll find a 4.3-inch, 720p S-LCD2 display, which packs in an above-average pixel density of 341 ppi. Obviously, it doesn't hold a candle to all those 1080p behemoths we've been seeing, but these specs were top-of-the-line in 2012, and they still hold up well today. Viewing angles are better than average; colors are decently saturated (but not overly so) and text is pretty smooth, though it's expectedly not as good as what we've seen on the HTC One's 1080p screen. The only disappointment was the phone's subpar performance in direct sunlight — even at full brightness, we found it difficult to make out images and text.

A 1.6-megapixel front-facing camera resides above the screen, though it hangs out underneath the same panel of Gorilla Glass, along with the usual assortment of sensors and an LED notification light. The speakers are squeezed inside a tiny, narrow grille, which sits in between the glass and the top edge of the phone. On the opposite end, you'll find three capacitive keys: back, home and menu. (Recent apps pop up when you double-tap home, while a long-press of home pulls up Google Now.)

Turn the phone over and you'll discover a perfectly flat back featuring the 5-megapixel rear camera and LED flash. If you only



The First has a 4.3-inch, 720p display tucked under Gorilla Glass.

HTC FIRST WITH FACEBOOK HOME

SPECIFICATIONS	HTC FIRST
DIMENSIONS	125.99 X 65.04 X 8.89MM (4.96 X 2.56 X 0.35 INCHES)
WEIGHT	4.37 OZ. (124G)
SCREEN SIZE	4.3 INCHES
SCREEN RESOLUTION	1,280 X 720 (341 PPI)
SCREEN TYPE	S-LCD2, NON-PENTILE
BATTERY	2,000MAH LI-POLYMER (NON-REMOVABLE)
INTERNAL STORAGE	16GB
EXTERNAL STORAGE	NONE
REAR CAMERA	5MP, BSI, F/2, 28MM LENS
FRONT-FACING CAM	1.6MP, BSI, ULTRAWIDE ANGLE
VIDEO CAPTURE	1080P / 30 FPS (REAR); 720P (FRONT)
NFC	YES
RADIOS	GLOBAL: LTE 850/1900; HSPA+ 850/900/1900/2100; GSM/EDGE 850/900/1800/1900 AT&T: LTE 700/AWS (BANDS 4/17); HSPA+ 850/1900/2100; GSM/EDGE 850/900/1800/1900
BLUETOOTH	V4.0
SOC	QUALCOMM SNAPDRAGON 400 (8930AB)
CPU	1.4GHZ DUAL-CORE
GPU	ADRENO 305
RAM	1GB LPDDR2
ENTERTAINMENT	FM RADIO
WIFI	DUAL-BAND, 802.11A/B/G/N,
WIRELESS CHARGING	NO
OPERATING SYSTEM	ANDROID 4.1.2 (STOCK)

glance quickly, you may think that there isn't anything else happening on this side of the device, but look more closely and you'll see it: stenciled in incredibly light ink are logos for HTC, Facebook and AT&T, along with the obligatory FCC information underneath. The print is so small, so inoffensive, that it's actually hard to read in dimmer lighting conditions. This is something we want to see other companies mimic on their devices (Sprint has already taken a big step by removing logos from its branded phones). We're also happy to say the Beats Audio branding is nowhere to be seen, a rarity for a post-2011 HTC device.

Up top sits a 3.5mm headphone jack and mic, while the power button is located on the right. Since it sticks out

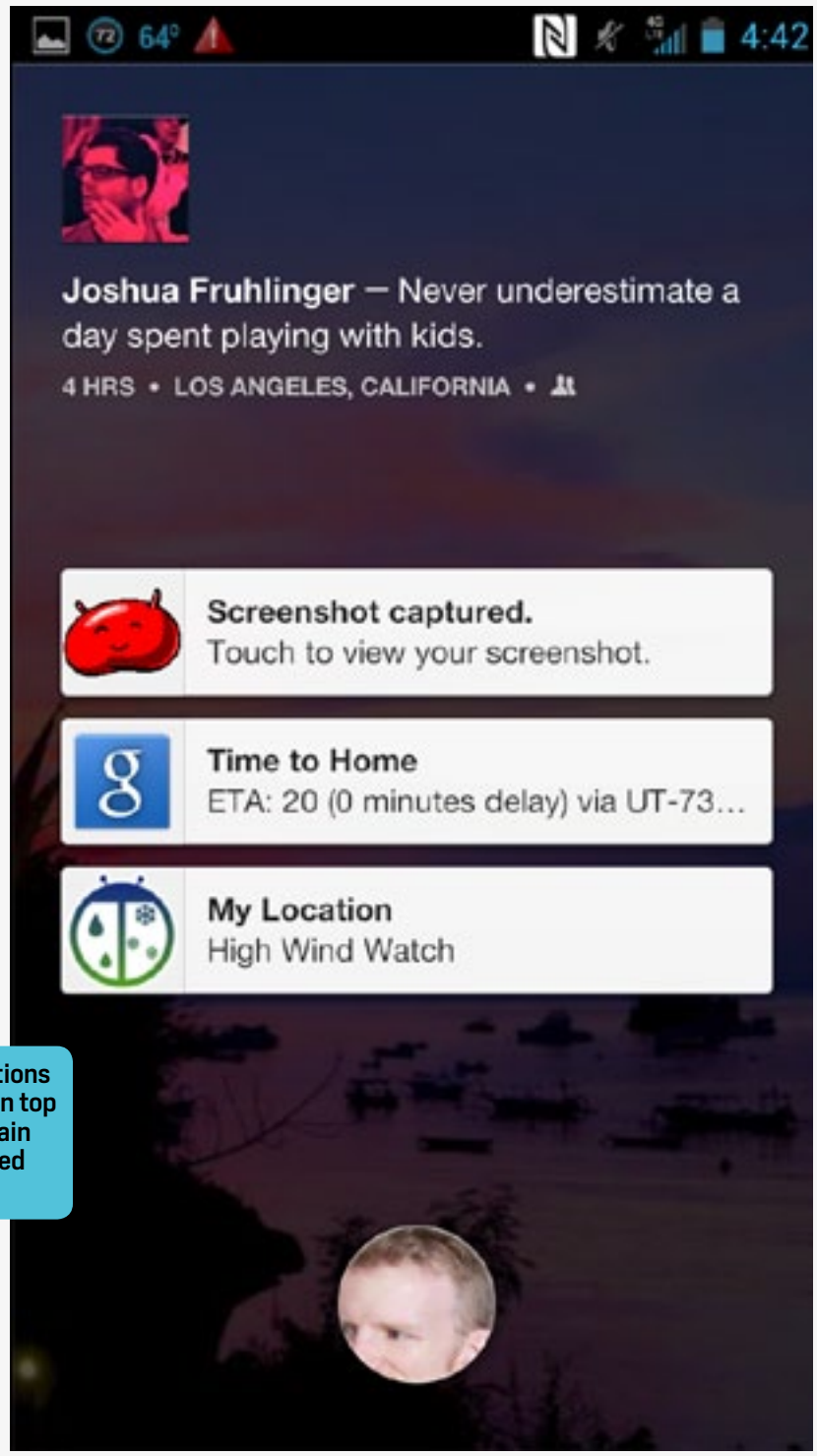
from the frame by at least a millimeter or so, that button is very easy to press. Meanwhile, the right side houses the micro-SIM slot and micro-USB charging port. It's an unfortunate location for the latter, but the bottom of the device — our preferred location for charging ports — is taken up by a machine-drilled speaker grille. The volume rocker is found on the left side of the First. Finally, if you're looking for a microSD slot or dedicated camera shutter button, you'll be disappointed.

The First is an AT&T exclusive in the US, and it actively uses LTE bands 4 and 17, HSPA+ 850 / 1900 / 2100 and quad-band GSM / EDGE (its FCC docs also indicate the presence of LTE bands 2 and 5, as most AT&T smartphones do). The global model, on the other hand, promises LTE capacity on 850 / 1900 as well as HSPA+ 850 / 900 / 1900 / 2100 and quad-band GSM / EDGE. Both devices also provide dual-band 802.11a/b/g/n, Bluetooth 4.0, NFC, FM radio, a non-removable 2,000mAh Lithium-polymer battery and 16GB of internal storage (11.9GB of which is user-accessible).

FACEBOOK HOME

As we mentioned earlier, the hardware isn't necessarily made to impress — it's just there to accommodate the pride of Menlo Park: Facebook Home. Even though Zuckerberg and the rest of the crew did a pretty good job of showing demos of this new feature in action, many people still had unanswered questions after the show.

What *isn't* Facebook Home? For starters, it's not a forked version of Android or its very own mobile operating system, as many had speculated. It's also technically not a deeply integrated skin like Sense and TouchWiz. Stripped to its basics, it's nothing more than a really fancy Android app launcher: in other words, it's simply a replacement to the standard



Notifications appear on top of the main Cover Feed screen.

HTC FIRST WITH FACEBOOK HOME

Active chat heads will float above all other content.

lock screens, home screen panels and app menus that we're used to seeing on a stock Android device. If you've played with launchers like Nova, GO Launcher or Apex, Facebook Home follows a similar setup. It's available as a free download in Google Play for a small assortment of flagship devices, including the Samsung Galaxy S III, the GS 4, the Galaxy Note II, the new HTC One and last year's One X+.

Yet, despite the fact that it'll be readily available on phones that have already been released, Facebook asked HTC to produce hardware with Home pre-installed. If it can be downloaded on Play, what's the point? During the April 4th event, execs made it known that there are slight advantages to having Home pre-installed on devices: the setup process is much cleaner and, more importantly, by partnering with manufacturers, Facebook has access to certain core Android frameworks and functions it wouldn't otherwise be able to modify. In other words, the First offers a more deeply integrated and optimized Home experience. Specifically, while the downloadable version only offers Facebook-related notifications, the First integrates services like calendar, Visual Voicemail, email and most notifications you'd find in the standard pull-down tray — even the "screenshot captured" notification appears front and center on Home until you swipe it away. It also features a Google Search bar in the app menu that you won't find on other devices running Home.

Now that we've defined Home and discussed why such a service justifies the existence of the First, we'll dive into the experience itself. The launcher focuses on two specific areas of the UX: visuals and gestures. Say what you want about Facebook and whether you feel the need to be constantly connected to it, but Home offers a visually stunning interface. The challenge is all about user-friendliness — it's fun to

look at, but will the new First owner instinctively know what to do with it?

Home can be broken down into three distinct sections: Cover Feed, which is a lock screen / home screen hybrid that displays dynamically changing images to reflect your news feed; the main app launcher, in which you can drop your favorite apps for easy access; and a vertical-scroll app tray, which brings back too many memories of the Gingerbread days.

COVER FEED

Cover Feed is the first thing that pops up when you turn on or wake your phone from sleep (you can change this in the settings if you prefer). And it's like a surprise party every time you perform either action: the lights come on and you never know what you're going to get, since the screen dynamically changes to reflect the most recent Facebook or Instagram post. (Instagram only shows up in your feed if you sign into your account first.) Throughout our testing, we were pleasantly surprised with flowers, beautiful vistas and obligatory food shots. On the flipside, there were times in which we were greeted by flesh wounds and zombies in bikinis (yes, really). Naturally, just this one action may well be one of the most entertaining aspects of Home, especially if you follow an eclectic group of people.

> Stripped to its basics, it's nothing more than a really fancy Android app launcher.

The point of Cover Feed is to give you a new — and more casual — way of browsing your news feed, with status updates, links and images that take up the entire screen (and often scroll in Ken Burns fashion). As Facebook's Director of Product Adam Mosseri pointed out at the launch event, smartphone users turn their devices on an average of a hundred times throughout the day, and many of those instances are prompted by a fit of boredom. So if you have a minute or two to kill, why not use that time to quickly and easily check out what your friends and family are doing?

Images in Cover Feed typically consist of profile pictures, photos posted by your friends and Instagram pics, and they're usually accompanied by additional content, such as links, status updates and other posts your friends have liked. Each picture featured on Home is typically so large that you can't see the full thing on one screen, but you can zoom out and view the whole enchilada when you long-press the image. Additionally, the phone cycles through your feed on a frequent basis, pushing through different status updates and photos every 30 seconds or so. To Like a given update, just double-tap the screen and the big thumbs-up appears. If you

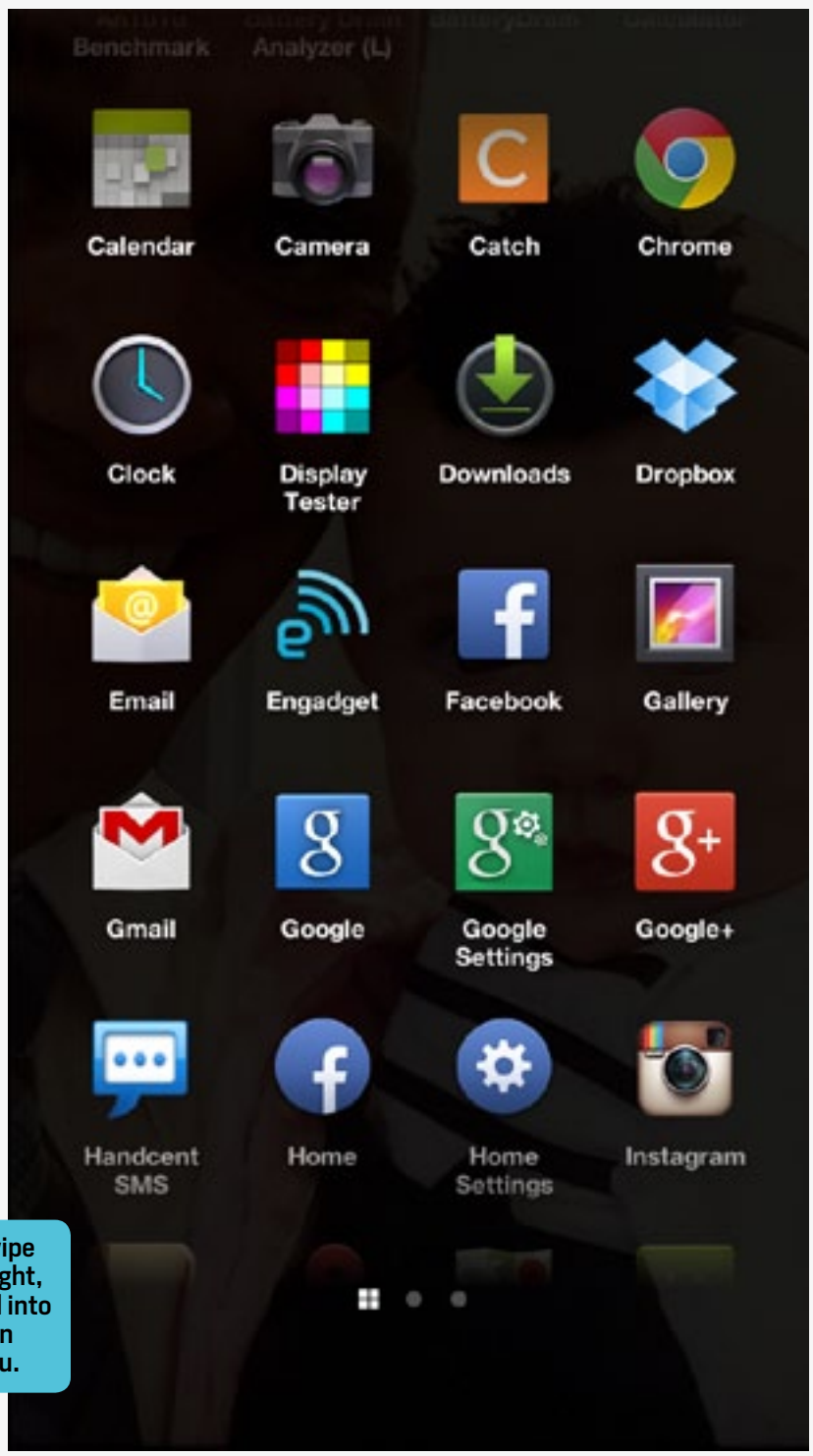
want to comment on it, just click the appropriate button on the bottom left.

Another important aspect of Cover Feed is the way it handles notifications, which show up front-and-center when you wake up the device. Several options are available to you at this point: double-tap the individual notification to access it, swipe them away one at a time or long-press to bundle them up and get rid of all of them in one gesture. Status updates are shortened when notifications are present, but you can tap another part of the screen to expand the text and get rid of the notifications. Tap again, and you're back to the way things were before.

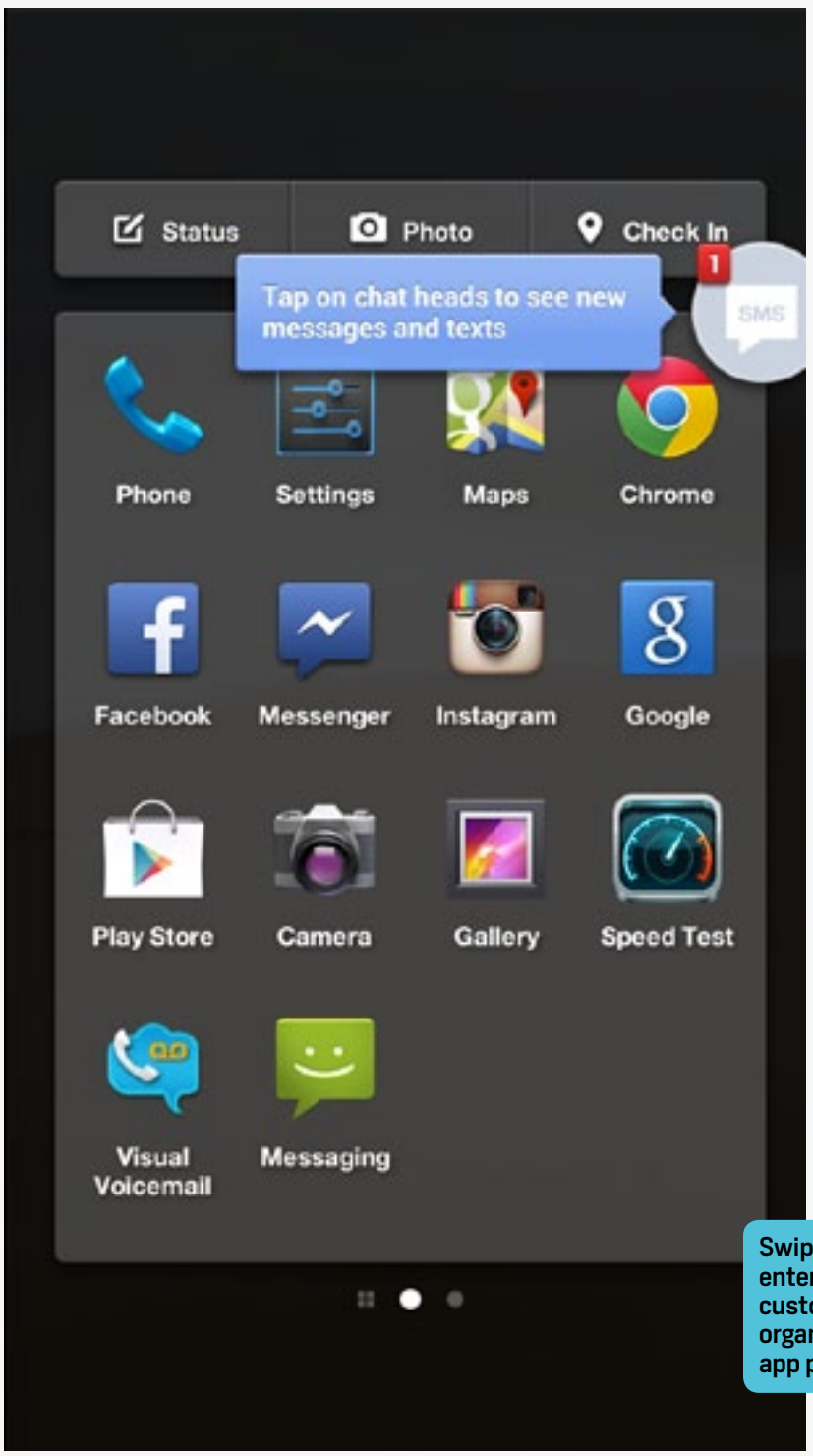
At the bottom of Cover Feed you'll also notice a circle containing your profile picture. Treasure this icon, for it is your escape from the world of never-ending food and cat photos. Swiping it to the right takes you to your most recent app, while going to the left leads to messaging and an upward gesture transports you to Facebook's app launcher.

APP LAUNCHER AND MENU

The app launcher is a series of panels, each one comprising a 4 x 4 grid of app icons in a minimal Holo-themed box. Facebook tells us there is no limit on the number of panels we can utilize, other than our own app count; we made it up to 12 before ceasing our efforts, and there was still room for more. Unfortunately, there's no option to add widgets or folders. Folks who routinely visit the Facebook for Android app will notice some similar elements: above each panel lies the same set of three features as the native application — status, photo and check in. It seems as though Home will slowly, but surely eliminate reasons to visit the standard app, though its initial launch doesn't get us quite to that point just yet. (Facebook plans to add new functionality, bug fixes and de-



If you swipe up and right, you head into your main app menu.



vice compatibility in the form of regular monthly updates, so it's quite likely that the native app will eventually become irrelevant.) As a point of trivia, if you look hard enough at the wallpaper you'll notice that it's your most recently viewed Facebook photo.

From here, make one swipe to the right and you're now in familiar territory: a vertically scrolling app menu featuring your full list of applications with a Google Search bar perched on top.

As on most Android devices, a long-press of any icon will push it to the app launcher, giving you the option to either drop it somewhere or — in the case of apps installed from the Play Store — drag them to the top of the panel to uninstall them.

MESSAGING AND CHAT HEADS

One of Home's greatest strengths is its messaging functionality, which takes the best of SMS and Facebook chat and combines them into one app. Whenever you receive a new message, you'll see a bubble pop up with that person's profile picture inside, with the number of unread messages in red and the first few words of text proudly displayed in a tiny box off to the side. These bubbles, which will appear regardless of which app you're currently in, are called "chat heads." You can move the chat head around to different places on either side of the screen (never in the middle, likely because it would become too much of an interference with your other activities), or drag it down to the bottom to get it out of the way. If you're following multiple conversation threads, you'll notice that the chat head turns into a stack. Additionally, in the case of group conversations, multiple profile pictures will appear inside.

When you click on a chat head, a new pop-up screen will arrive, which shows the main body of the conversation thread and two or more circles on top. With the

exception of the leftmost one, all of the circles (you can have up to five stretched out across the width of the display) are active chats; the bubble on the far left is a shortcut that takes you to your messaging app. If you already have four conversations taking place and a new one comes in, it bumps out the oldest thread to make room for it. Don't worry, you aren't losing that information — you'll just need to go back into the messaging app to access it again.

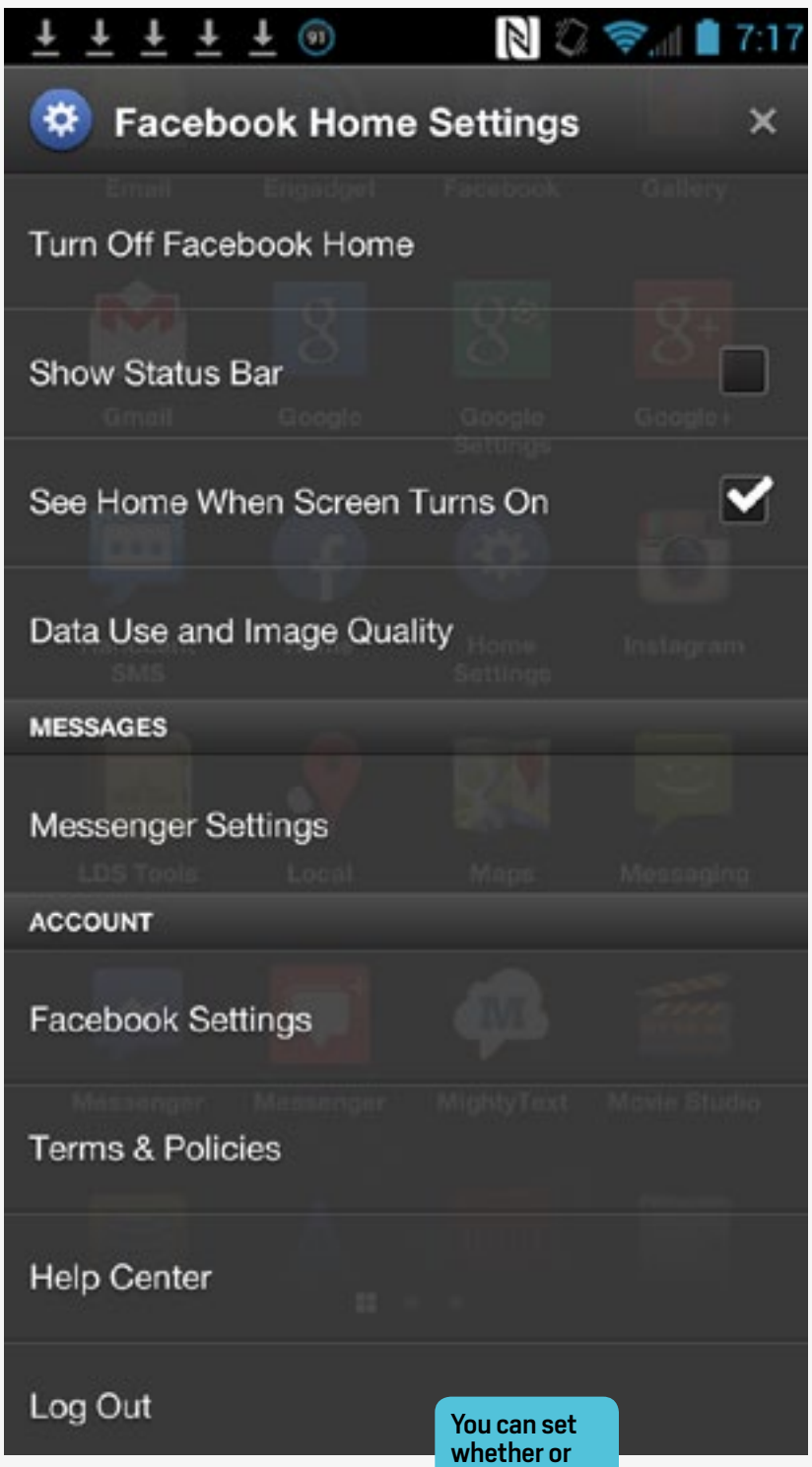
ANDROID 4.1

Going back to the app menu, we became curious about a "More..." icon at the bottom of the screen. Upon pressing it, we discovered that it takes us to the standard Jelly Bean app launcher, complete with the widgets, wallpaper and dock tray that we're used to. Yes, the rumors are completely true: the First features pure vanilla Android 4.1.2, rather than a version of Sense. While the First comes pre-loaded with Home, the launcher can be turned off in the settings, leaving you with a completely unadulterated version of Jelly Bean.

Since Home is nothing more than a launcher, this shouldn't come as a huge revelation, but it's a selling point that instantly expands the First's intended demographic beyond the expected Facebook-hungry crowd. It's not very often that a US carrier-branded phone offers a stock Android experience out of the box, and Nexus 4 fans wishing for an LTE option may find this to be an acceptable alternative. One word of warning, however: we've confirmed with HTC that the bootloader does not come unlocked on the First.

CONCERNS WITH HOME

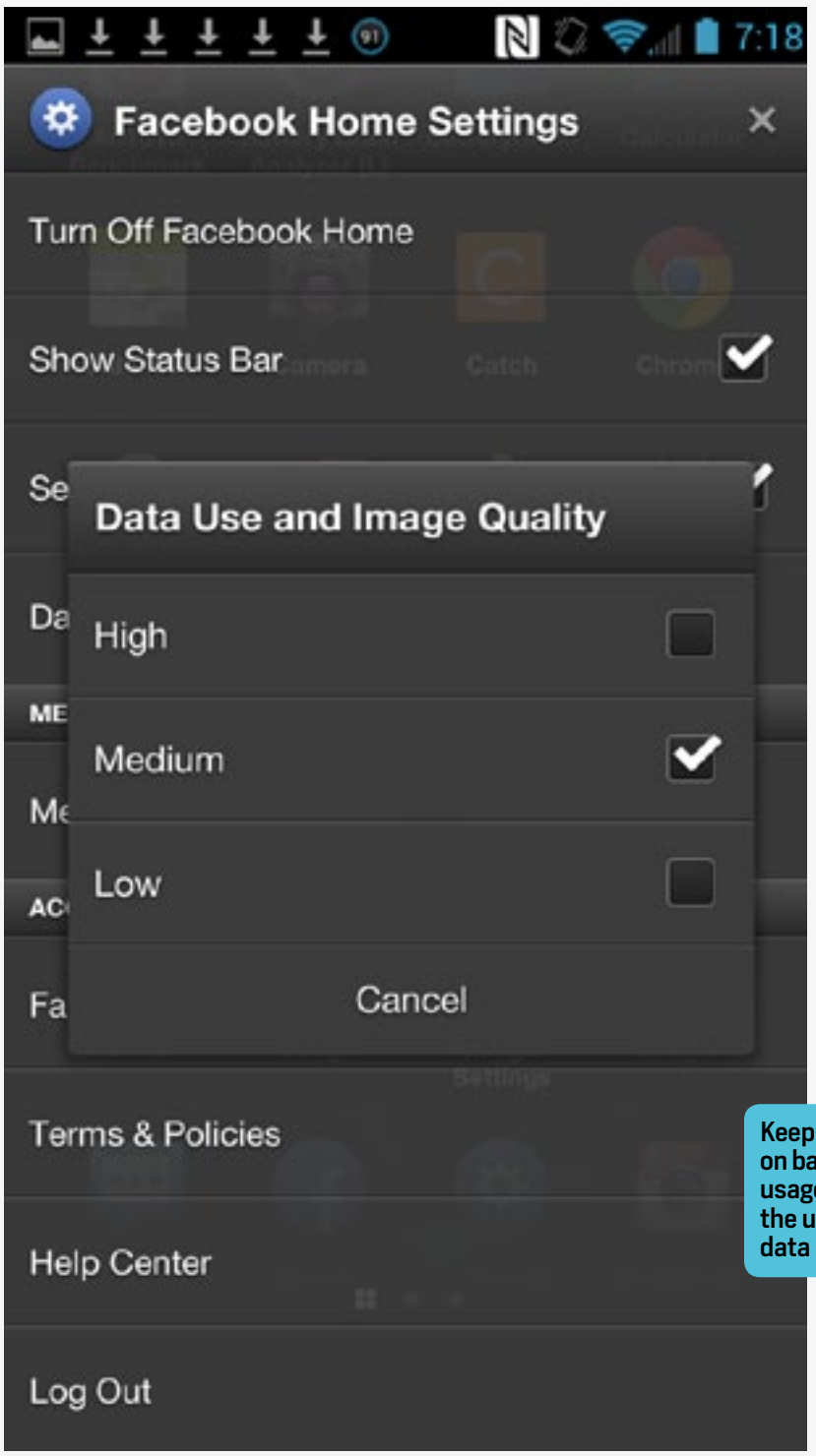
By far, our greatest concern with Home is the impact that it could potentially have on data usage, since it dynamically updates Facebook's news feed in the background. Fortunately, Facebook includes a three-tier data usage and image quality setting



You can set whether or not you want Home always on view.

(high, medium and low) that lets you adjust the amount of information streaming into your phone. The toggle becomes handy for smaller data plans or if you're getting close to your limit, but oddly a WiFi-only option isn't available — we'd like to see this added in an update sooner rather than later. Why? In our testing, we consumed 93MB in four days on the medium setting; at that pace, Home would snatch up 698MB in a month. Think about it this way: if you have a 2GB plan, Facebook Home would take up more than one-quarter of your data allotment, on the *medium plan alone*. Now imagine how much the high-usage scenario destroys the average consumer's data plan. Use Home responsibly, folks.

Another minor annoyance is the fact that when Facebook friends upload a series of images, each one shows up as a separate update. This means we found ourselves having to scroll repeatedly through several images from the same person before finally getting to an update from someone different. Additionally, we'd like to see widgets and customizable launch shortcuts (such as a camera quick-access button, for instance) to offer faster access to important features.



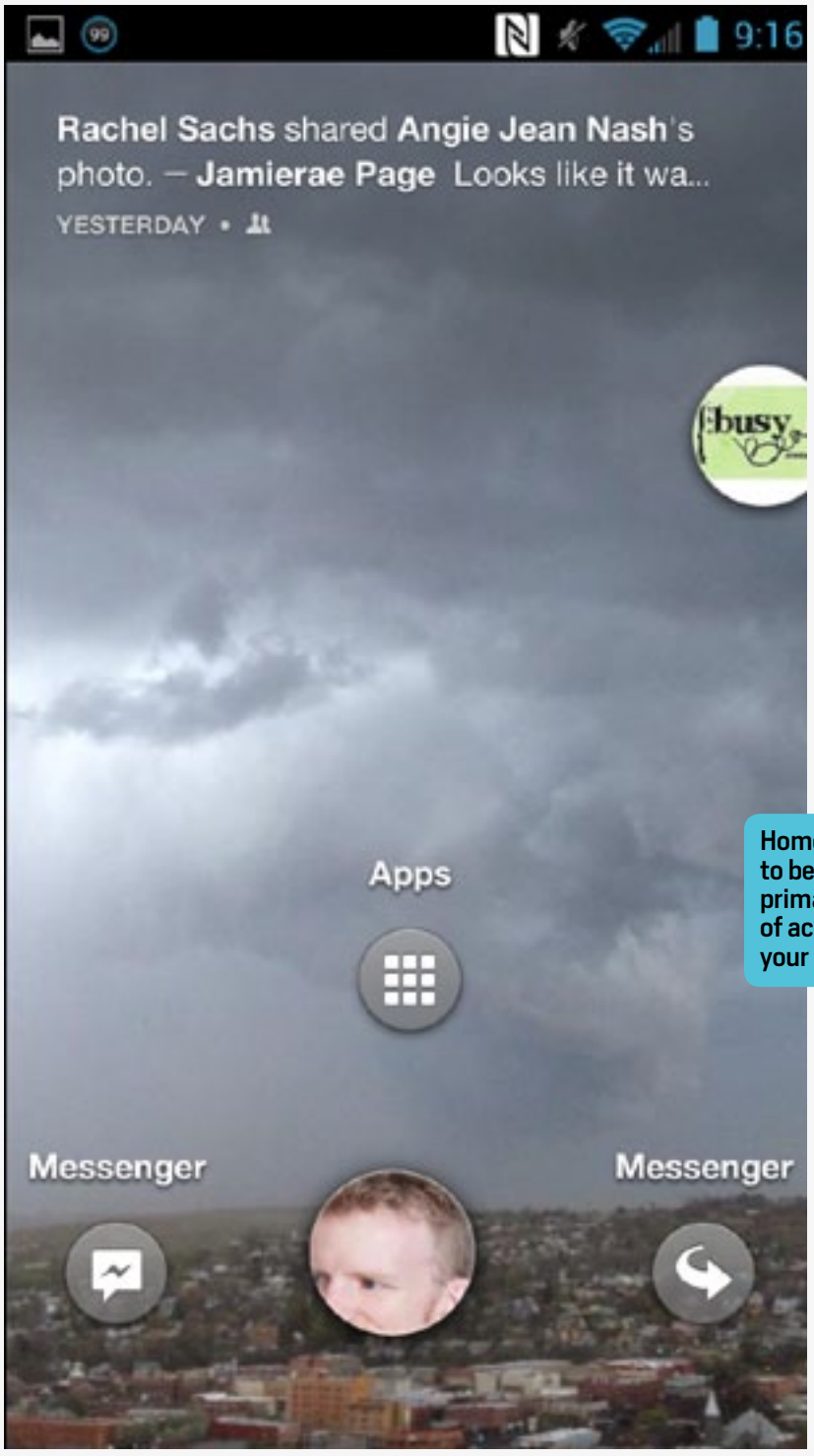
Keep an eye on bandwidth usage with the unending data stream.

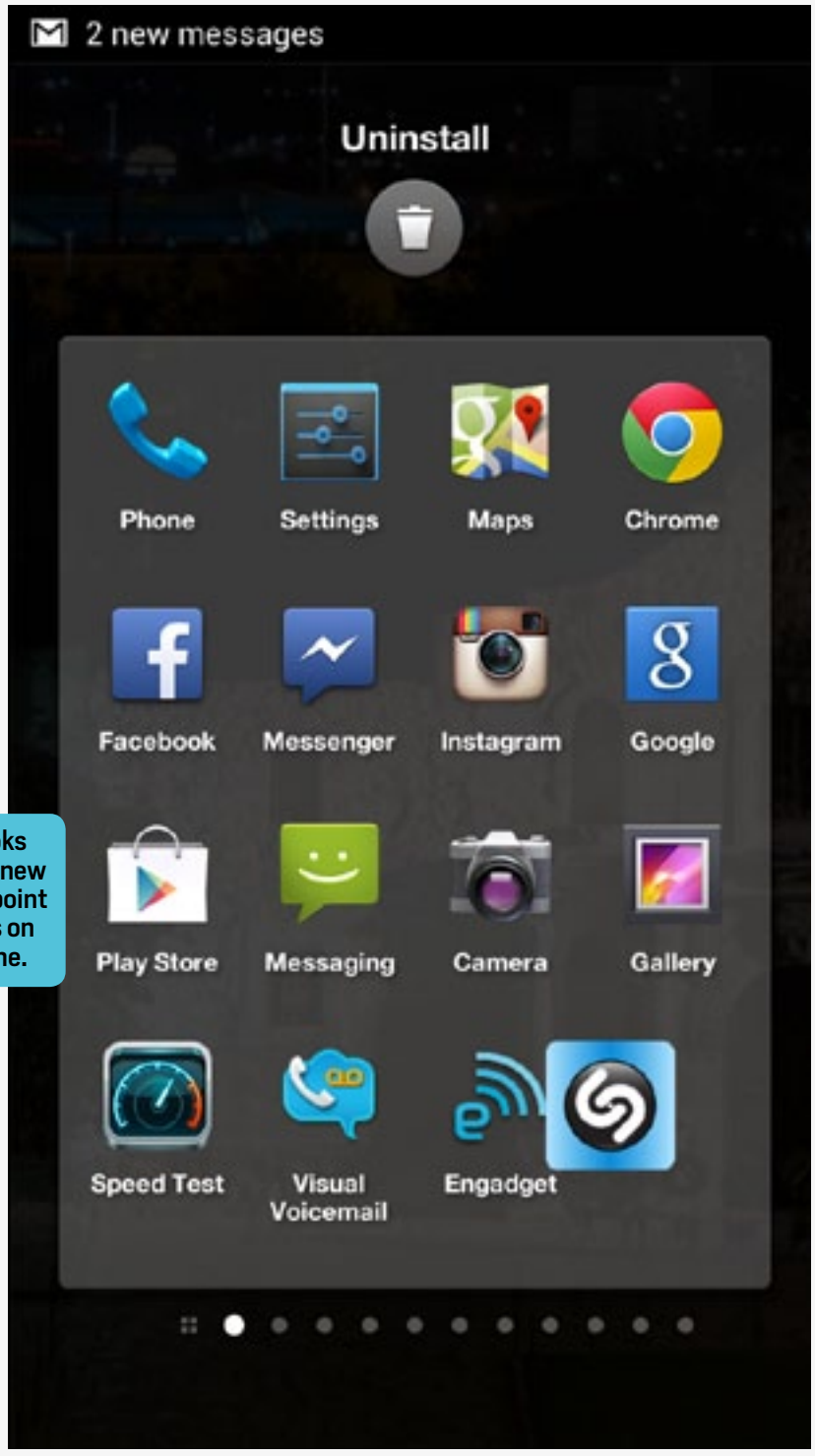
HOME'S POTENTIAL

Will Home be the perfect fit for everyone? Not at all, but Facebook already knows that not everyone who downloads the launcher or purchases the First will take a liking to it. What Home will do, however, is increase the network's mindshare, improve its reputation in mobile performance and draw a lot more views on each and every status update shared on Facebook. It also increases the momentum the company wants to build in the smartphone world. Zuckerberg doesn't have a lot to lose by doing this, even if the First turns out to be a flop.

Will Home be a success? To answer that, let's break it down by group to figure out who might find it useful. Most power users probably

HTC FIRST WITH FACEBOOK HOME





Home looks to be the new primary point of access on your phone.

won't have much use for it, unless their business is focused primarily on Facebook — and even then, we haven't found any way to integrate Pages into Home at the time of launch. Widget lovers will quickly become frustrated by their inability to access their favorite ones without jumping into the stock launcher each time. People whose Facebook accounts are non-existent or feature small lists of friends will find it completely unbeneficial, if their eyes don't glaze over as soon as they hear the name of the service. Facebook-savvy individuals — the heavy users — will not only enjoy it, but will also be the most vocal about getting updates and new features. Folks who are either frequently bored or just looking for a quick departure from reality will at least be entertained by it, if nothing else. To put it bluntly, Home won't convert non-Facebookers into believers, and it won't encourage people to

sign up for the service; it will be a failure in that sense. It may, however, turn casual users into more habitual Likers, commenters and posters, and we have a feeling this is exactly the kind of success Facebook is hoping to reap.

For a 1.0 release, Facebook Home is much more polished than we initially expected. It probably won't become this editor's launcher of choice, but we understand how it could draw a crowd of loyal followers. It's smooth, crisp and visually appealing. It even adheres to several of Android's basic design elements. Despite the fact that some of the gestures aren't blatantly obvious, the learning curve likely won't take too long for the average user to get over. If Facebook lives up to its promise of new monthly updates and broadens its range of devices, Home could be seen by more eyeballs than TouchWiz and Sense combined. There's also the realization that the company can instantly draw from a massive community of over a billion users — even if a small percentage of them will download Home and give it a good hearty welcome, the metrics will more than justify the time and effort it's put into the project. There's plenty of potential for Facebook to pull this strategy off, but it still has to play its cards right.

CAMERA

The 5-megapixel camera on the First is nothing to write Home about (see what we did there?), and we were hoping to see something a little better on a phone made solely for Facebook. What do we mean by that? It has to be good enough to take solid images, but it's not worth much beyond taking pictures of friends during your latest adventure. While we'd love this memory-capturer to live up to the same standards we enjoyed on the HTC One — or any ImageChip-laden HTC device, for that matter — it simply doesn't have what it takes to go the extra mile. On paper, the specs seem decent enough: the First's rear camera boasts f/2, a BSI sensor, 28mm lens and 1080p video recording. The front-facing cam uses a 1.6-megapixel BSI sensor with an ultra-wide-angle lens.

In terms of performance, color representation on the rear camera was incredibly accurate, but every other aspect of the module was subpar: low-light shots didn't live up to the expectations set by the specs, many daylight images suffered from soft focus and the level of detail was less than pleasing.

It's too bad that the First only has a mid-quality 5MP camera.

Again, we're trying to keep in mind that this particular device isn't meant to be performance-driven, but we were really hoping to upload some spectacular shots from the First and share them via Home. Unfortunately, this activity was kept to a minimum.

Since the First is a vanilla Android device, the camera UI is stock as well. We've never been overly impressed with this particular interface, as it lacks many of the options we've come to expect on other devices. We were able to tap to focus and hold down the shutter key to lock focus and exposure, and we could tweak white balance and exposure settings, but that was the extent of our customization efforts. And because the First lacks the ability to quickly launch the camera app, it takes longer to snap a photo than most other phones.

Unfortunately, it's more of the same with the 1080p video: motion was choppy and it lacked so many important details that we wouldn't have guessed it was HD quality at all. Even worse, the autofocus didn't seem to work properly, as our videos had difficulty retaining focus even when it was staying perfectly still. In summary, you won't be buying this phone for the imaging experience.

PERFORMANCE AND BATTERY LIFE

Lest we forget there's actually is a phone underneath Facebook Home, let's take a look at performance. This is the first time we've reviewed a handset with a Qualcomm Snapdragon 400 chipset, Adreno 305 GPU and 1GB RAM. As the name suggests, the 400 isn't quite as heavy-duty as the quad-core S4 Pro, Snapdragon 600 or 800, but as a 1.4GHz, dual-core, 28nm piece of silicon, it seems just about right for something like the First. It's not meant for power users, but it still needs to have enough *oomph* to ensure the phone's performance — or lack thereof — doesn't harm Facebook's brand along the way.

The benchmarks, as seen below, indicate that the difference between a Snapdragon 400 and 600 is rather significant, but this is hardly a disappointment. Rather, a quick comparison between the First and the Samsung Galaxy S III's quad-core performance tells a different story: the First is just as good — if not better — than Sammy's 2012 flagship in most of the benchmarks we ran. This is a solid indicator of how far Qualcomm's technology has come in the last year or so.

Fortunately, in real-life use, the quirks are kept to a minimum. It's hard to tell whether the 400 is primarily to thank or if the First's stock build offers advantages in performance, but we didn't run into any concerns with regular use. Compared to our usual device review, the important measurement of the phone's capability focuses solely on how well Home holds up throughout the user experience. Keeping in

BENCHMARK	HTC FIRST	HTC ONE	SAMSUNG GALAXY S III
QUADRANT	5,952	**12,495**	5,875
VELLAMO	2,239	**2,429**	1,626
ANTUTU	11,267	**25,140**	10,944
SUNSPIDER 0.9.1 (MS)	1,995	**991**	1,194
GLBENCHMARK EGYPT OFFSCREEN (FPS)	14	**34**	15
CF-BENCH	11,267	**25,140**	12,922

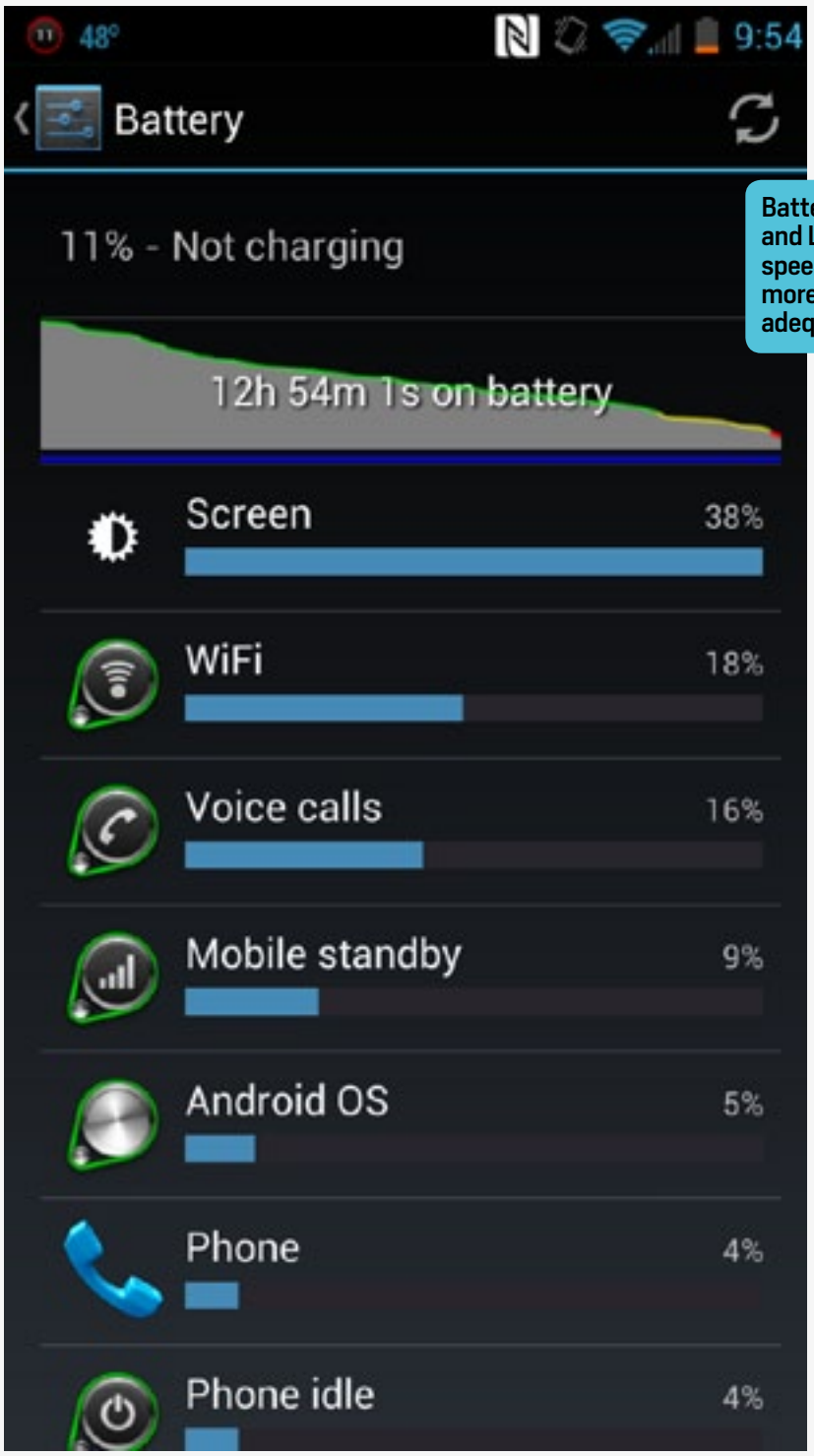
SUNSPIDER: LOWER SCORES ARE BETTER. SAMSUNG GALAXY S III WAS BENCHMARKED ON ANDROID 4.1.

mind that this is the first iteration of Facebook Home, there's bound to be a bug or two, but fortunately we only witnessed one on multiple occasions: a black screen where a profile picture or status update should have been. Each time, we were able to get back and running quite fast, and no crashes or reboots took place during our tests.

With its tendency to stream data in the background, we originally planned to keep some external battery packs around just in case we ran out of juice in the middle of the day. Fortunately, the 2,000mAh Lithium-polymer cell was enough to keep us going for 14 hours of solid use, with Home running on medium usage the entire time. Granted, you'd likely have less success when you bump your Home usage to high — and better times, conversely, when going to the low setting. For our battery rundown test, which consists of running an HD movie on an endless loop (with a variety of different settings tweaked to make sure we stick to the same standard test), the First got through seven hours and 36 minutes, which is actually better than we'd expected. This compares nicely with the One X+, LG Optimus G Pro and other top-notch devices.

We know you'll be mesmerized just watching status updates fly across the screen, but we'll give ample warning that your trance may be interrupted on occasion by an actual phone call — you know, the old-school method of social networking. When the situation arises, feel confident knowing that in our tests, all of our cellular connections have been consistently good and the volume was more than sufficient. The loudspeakers are better than average as well, but be careful not to block the lone speaker grille with your finger or other objects, an act that will muffle the sound.

The pale-blue model we reviewed



Battery life and LTE speeds were more than adequate.

was AT&T-branded, so we were able to take advantage of the carrier's LTE network. It was every bit as impressive as we hoped it would be: while our speeds in Salt Lake City averaged between 25 and 35 Mbps down and 10 Mbps up, we got results as high as 57 Mbps down and 17 up. Naturally, your speeds will vary by market, but needless to say, the First is just as capable as any other AT&T LTE device currently stocked on store shelves.

WRAP-UP

The HTC First is compelling for two reasons. For Facebook fans, it's now easier to maintain social connections with friends and family. For the tech-savvy crowd who has little interest in the service, the phone is a stock Android 4.1 device that comes with AT&T LTE, which is still something of a rarity. Including this opt-out was a smart move on Facebook's part, because it's difficult to recommend that consumers sign two-year contracts on an

HTC FIRST WITH FACEBOOK HOME

Facebook has come a long way since the fledgling HTC Status.

unproven product that depends so heavily on their engagement with Facebook. Worst case, it's a decent mid-range phone for $99 on contract (or $450 without any commitment).

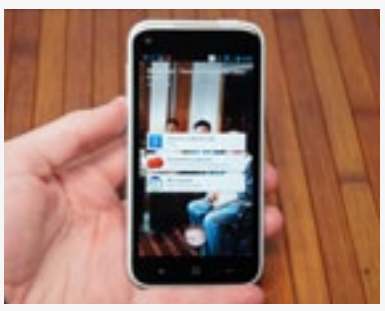
Facebook Home isn't perfect, nor will it convince many non-Facebookers to start Liking and commenting with reckless abandon. But it's aesthetically pleasing, and surprisingly polished for a 1.0 product. Besides, if you download it onto an existing phone through the Play Store, it's free to use and easily removable, which might give the software broad appeal from the get-go. In its current state, Home isn't the best fit for productivity-minded people, although it does offer a bit of mindless entertainment for anyone just looking to burn a minute or two throughout the day. More importantly, Home is proof that Facebook wants to attack the saturated mobile market. It's hard to say if it will win the battle, but it's bringing a heavy load of artillery to the fight. D

Brad is a mobile editor at Engadget, an outdoorsy guy, and a lover of eccentric New Wave and electro. Singer and beatboxer.

BOTTOMLINE

AT&T HTC FIRST

$100



PROS

- Facebook Home is visually appealing
- Stock Android 4.1 runs underneath the Home UI
- Solid performance
- Great 720p display

CONS

- Horrible camera and video capture
- Home eats data for breakfast, lunch and dinner

BOTTOMLINE

The First is an above-average mid-range device, and Facebook Home is a solid 1.0 product with plenty of room to grow.

ESC

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DISTRO
04.19.13

CLARITY

PHOTOGRAPH COURTESY OF THE DEISSEROTH LAB, STANFORD UNIVERSITY

ESC

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DISTRO
04.19.13

CLARITY

Transparency has been a hot topic in politics, but it's also been a scientific milestone at Stanford University's Deisseroth Lab. Bioengineer and psychiatrist Karl Deisseroth and his team have developed an organ-imaging process called CLARITY. It involves infusing a rat brain (in this case) with hydrogel, thermally triggering the gel to harden and preserve its structure, then extracting lipids through electrophoresis. The result is a clear framework, which, when infused with fluorescent antibodies, can reveal the intricate pathways of the brain in a stunningly detailed 3D rendering.

PHOTOGRAPH COURTESY OF THE DEISSEROTH LAB, STANFORD UNIVERSITY

HARRY McCRACKEN

TIME'S TECHNOLOGY EDITOR-AT-LARGE on OS agnosticism and the golf disconnect

What gadget do you depend on most?
My iPad, with a Bluetooth keyboard — at the moment, Logitech's new Keyboard Folio. It's the computer I use 85 percent of the time.

Which do you look back upon most fondly?
My Psion 5 palmtop — in certain ways, it was a better-designed pocket computer than any modern smartphone.

Which company does the most to push the industry?
Boring answer, but true: Apple.

What is your operating system of choice?
I'm an OS agnostic — I'm happiest flitting between iOS, Android, OS X, Windows and others.

What are your favorite gadget names?
I like ones that are kind of goofy and lovable — PalmPilot, Walkman, Game Boy...

What are your least favorite?

Any random-letters-and-digits ones I can't remember when I want to recommend a product — like the Sony Cyber-shot DSC-RX100.

Which app do you depend on most?
A wonderful iPad blogging app called Blogsy, which I use to write most of my stuff.

What traits do you most deplore in a smartphone?
Unreliability. If it doesn't work, nothing else matters.

"Battery life remains the great unsolved problem of the consumer electronics industry, except for E Ink e-readers."

Which do you most admire?
A good browser is the single most important app in the world.

What is your idea of the perfect device?
Any one that starts to feel like an extension of my brain.

What is your earliest gadget memory?
Maybe the Polaroid Super Shooter cameras that my grandmother gave to my sister and me, circa 1975.

What technological advancement do you most admire?
The arrival of high-quality, low-cost color LCDs in the 1990s was essential to a whole bunch of gadget categories.

Which do you most despise?
Anything that helps a government spy on its citizens.

What fault are you most tolerant of in a gadget?
Missing features, as long as the ones that are there are good.

Which are you most intolerant of?
Signs of contempt for the customer, such as cruddy pre-installed apps.

When has your smartphone been of the most help?
Every single time I wonder about any fact. What a blessing to be able to get an answer instantly.

What device do you covet most?
If I were fabulously wealthy, I'd buy myself a Tourbillon watch. Maybe several.

If you could change one thing about your phone what would it be?
Battery life remains the great unsolved problem of the consumer electronics industry, except for E Ink e-readers.

What does being connected mean to you?
I long ago forgot what it's like to not be connected.

When are you least likely to reply to an email?
Sadly, I'm not as good about email as I should be, so the true answer is "any time."

When did you last disconnect?
At the 2012 golf US Open — cameras, phones and other gadgets were barred from the grounds. D

IN REAL LIFE is an ongoing feature where we talk about the gadgets, apps and toys we're using in real life.

TIMBUK2 COMMUTE MESSENGER

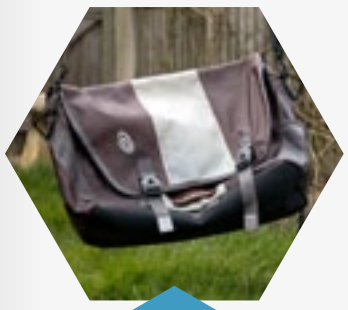
Fujifilm EF-X20 Flash

I'M A FIRM BELIEVER in traveling light, so it's rare that I'm seen with anything larger than a flight case, often to the surprise and bemusement of my colleagues. I decided to see if I could cover this year's CeBIT with nothing more than one of Timbuk2's OG Commute messenger bags, and the results were surprisingly positive. Despite its TSA-approved fold-out laptop sleeve, Luddite security personnel still insisted my tech had to be removed from the bag, but you can't legislate against that.

Otherwise, I was able to cram in five days' worth of clothes, a DSLR, laptop, two phones, chargers, cables, adapter plugs, business cards and my rather large supply of toiletries. While tromping around the show floor, it was extraordinarily useful to have so many pockets and zipped compartments for all of my various gadgets, although I do lament the lack of a dedicated camera pouch — relying instead on wrapping my shooter in a T-shirt to keep it safe during the week. Either way, it's certainly a lot more versatile than other bags I've tried, and has been a great choice for shorter trips.

— Dan Cooper

FUJIFILM EF-X20 FLASH



Timbuk2 Commute Messenger

THE MINIATURIZATION of my traveling photo kit continues. Next up under the shrink ray: the external hot shoe flash. Fujifilm's EF-X20 has been out for about a year now and continues the company's push to build out its retro-style X-series line. While it might make more sense on the X-Pro1 (which lacks a built-in flash), I've found it to be plenty useful on my X-E1.

The EF-X20 is a surprisingly small flash unit, given what it can do. While it's roughly the size of an old-school pager, it's slightly chunkier. There's no LCD to be found — just a few switches and a rotary dial to control TTL and manual settings. Exposure values on the TTL side can be dialed up (or down) in one-third increments while the manual side ranges from full power down to 1/64. A lever on the right side controls an internal wide-angle diffuser.

The bottom houses a three-way switch that enables remote flash mode. It's an intriguing feature for such a tiny flash and it's honestly one of the main reasons I chose it over more powerful (though bulkier) options. As a remote flash, its portability and simple controls work very well. A built-in sensor detects when a main flash has fired and triggers the EF-X20 accordingly.

Of course, there are compromises. With a guide number of just 20, it's certainly not the most powerful flash out there, but it's plenty capable of lighting up portrait subjects or serving as a fill light. Really, the biggest drawback is its reliance on AAA rather than AA batteries. That's two types of batteries I now need to carry around. The $200 price may net you larger, more powerful flashes, but the EF-X20's small size and versatility are winners in my book. — *Philip Palermo*

The week that was in 140 characters or less

Movie Motives, Ouroboros Buyout and Top of the Pops

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@MaxwellTatem

Netflix: the only reason people install Silverlight

@terrillo
Verizon sells spectrum to Clearwire > Sprint buys Clearwire > Dish buys Sprint //--> Verizon buys Dish

@phonewisdom
Think about how much easier it will be to do an unboxing video with Google Glass. (Now someone needs to unbox Glass using Glass.)

@carolDanvers
simcity social is shutting down june 14 so basically the world's ending

@danielwcooper

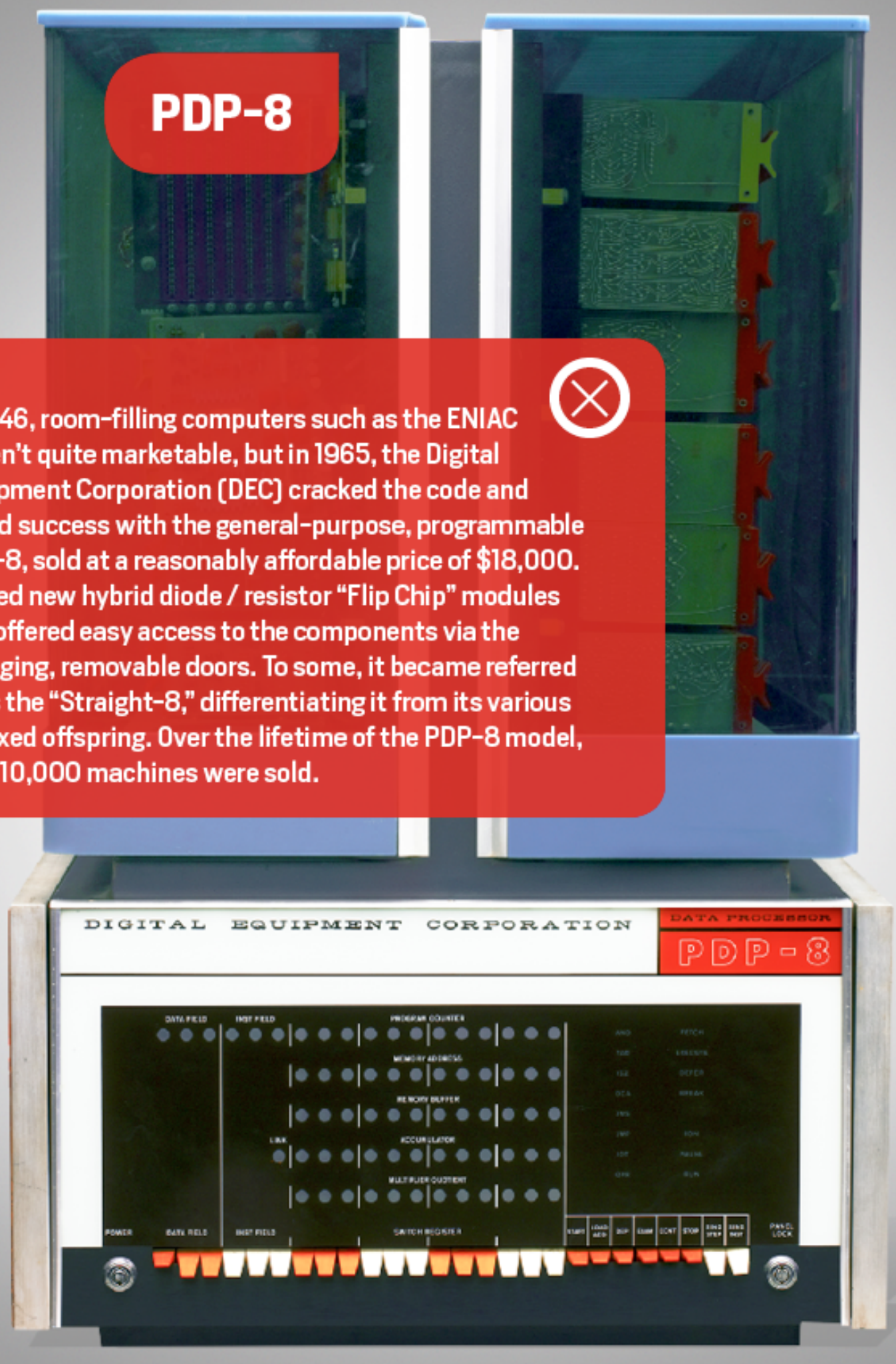
So, wait, Twitter #Music is just the top trending music? The Beliebers, therefore, have already made it utterly unusable.

THE STRIP | BY SHANNON WHEELER

PHOTOGRAPH BY MARK RICHARDS. COURTESY OF THE COMPUTER HISTORY MUSEUM

PDP-8

In 1946, room-filling computers such as the ENIAC weren't quite marketable, but in 1965, the Digital Equipment Corporation (DEC) cracked the code and found success with the general-purpose, programmable PDP-8, sold at a reasonably affordable price of $18,000. It used new hybrid diode / resistor "Flip Chip" modules and offered easy access to the components via the swinging, removable doors. To some, it became referred to as the "Straight-8," differentiating it from its various suffixed offspring. Over the lifetime of the PDP-8 model, over 10,000 machines were sold.



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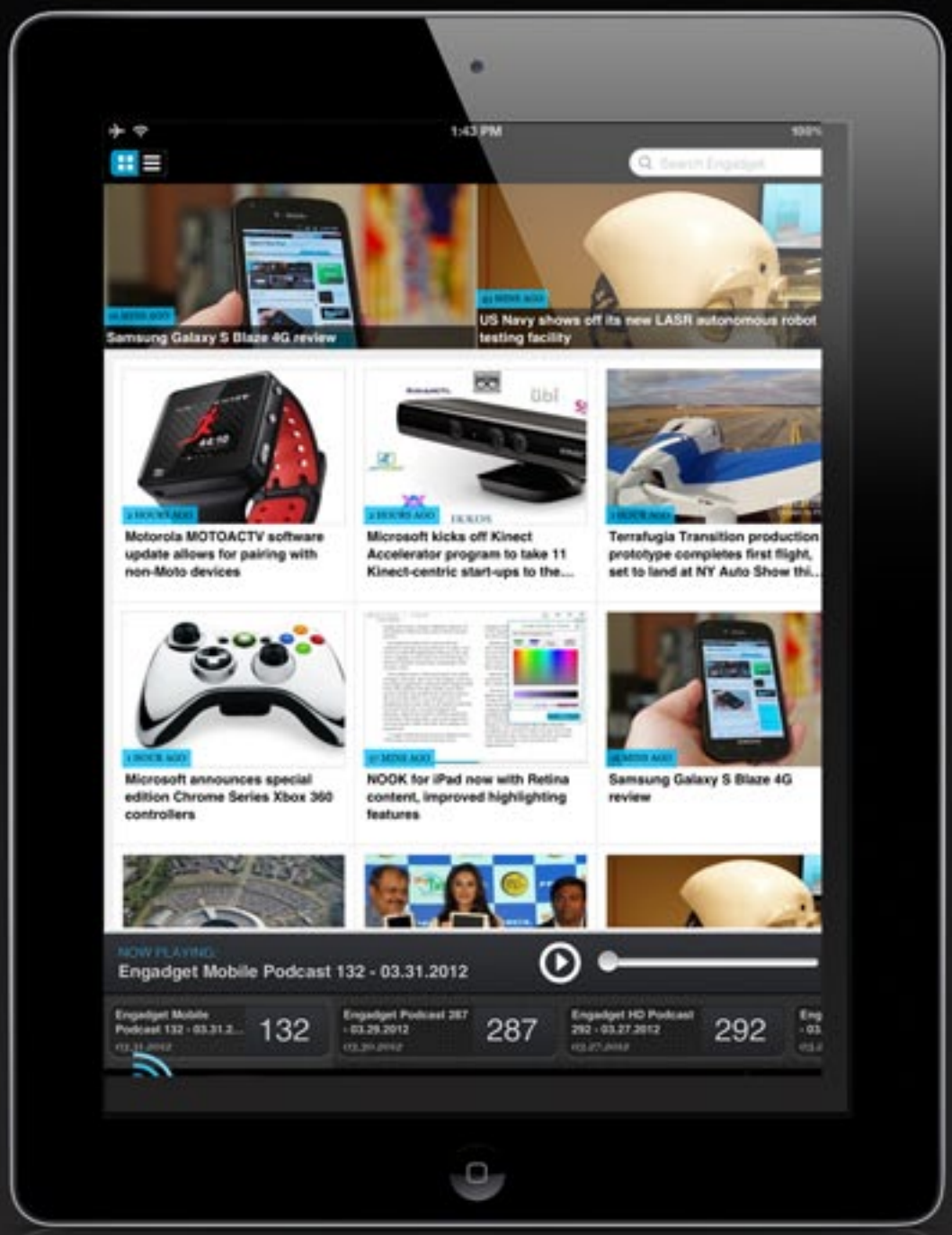

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